

State of North Carolina
Department of Environment and Natural Resources
Division of Water Resources
Animal Feeding Operations Permit Application Form
(THIS FORM MAY BE PHOTOCOPIED FOR USE AS AN ORIGINAL)
NPDES General Permit - Existing Animal Waste Operations

1. GENERAL INFORMATION:

- 1.1 Facility name: Taproot Dairy, LLC
- 1.2 Print Land Owner's name: Billy Johnston
- 1.3 Mailing address: 752 Butler Bridge Rd.
City, State: Fletcher, NC Zip: 28732
Telephone number (include area code): (828) 777 - 7899
- 1.4 Physical address: 735 Butler Bridge Rd.
City, State: Fletcher, NC Zip: 28732
Telephone number (include area code): (828) 777 - 7899
- 1.5 County where facility is located: Henderson County
- 1.6 Owner's email address: _____
- 1.7 Facility location (directions from nearest major highway, using SR numbers for state roads): On SR1345 Butler Bridge Rd. just East of the French Broad River and West of I-26.
- 1.8 Farm Manager's name (if different from Land Owner): _____
- 1.9 Lessee's / Integrator's name (if applicable; circle which type is listed): _____
- 1.10 Facility's original start-up date: 02/ 1988 Date(s) of facility expansion(s) (if applicable): _____

RECEIVED/DENR/DWR

JUN 20 2014

Water Quality Regional
Operations Section

← Revised
and
submitted
10/16/2014

2. OPERATION INFORMATION:

2.1 Facility number: 45-02

2.2 Operation Description:

Please enter the Design Capacity of the system. The "No. of Animals" should be the maximum number for which the waste management structures were designed.

Type of Swine	No. of Animals	Type of Poultry	No. of Animals	Type of Cattle	No. of Animals
<input type="checkbox"/> Wean to Feeder	_____	<input type="checkbox"/> Layer	_____	<input type="checkbox"/> Beef Brood Cow	_____
<input type="checkbox"/> Feeder to Finish	_____	<input type="checkbox"/> Non-Layer	_____	<input type="checkbox"/> Beef Feeder	_____
<input type="checkbox"/> Farrow to Wean (# sow)	_____	<input type="checkbox"/> Turkey	_____	<input type="checkbox"/> Beef Stocker Calf	_____
<input type="checkbox"/> Farrow to Feeder (# sow)	_____	<input type="checkbox"/> Turkey Poults	_____	<input type="checkbox"/> Dairy Calf	_____
<input type="checkbox"/> Farrow to Finish (# sow)	_____			<input type="checkbox"/> Dairy Heifer	_____
<input type="checkbox"/> Wean to Finish (# sow)	_____			<input type="checkbox"/> Dry Cow	_____
<input type="checkbox"/> Gilts	_____			<input type="checkbox"/> Milk Cow	<u>800</u>
<input type="checkbox"/> Boar/Stud	_____				

☐ Other Type of Livestock on the farm: _____

No. of Animals: _____

2.3 Acreage cleared and available for application (excluding all required buffers and areas not covered by the application system): 675 Required Acreage (as listed in the CAWMP): 185

2.4 Number of lagoons: _____ Total Capacity (cubic feet): _____ Required Capacity (cubic feet): _____

Number of Storage Ponds: 2 Total Capacity (cubic feet): 485,768 Required Capacity (cubic feet): 444,207

2.5 Are subsurface drains present within 100' of any of the application fields? YES or **NO** (circle one)

2.6 Are subsurface drains present in the vicinity or under the waste management system? YES or **NO** (circle one)

2.7 Does this facility meet all applicable siting requirements? **YES** or NO (circle one)

3. REQUIRED ITEMS CHECKLIST:

Please indicate that you have included the following required items by signing your initials in the space provided next to each item.

3.1 One completed and signed original and one copy of the application for NPDES General Permit - Animal Waste Operations;

Applicants Initials

TSJ

3.2 Two copies of a general location map indicating the location of the animal waste facilities and field locations where animal waste is land applied and a county road map with the location of the facility indicated;

TSJ

3.3 Two copies of the entire Certified Animal Waste Management Plan (CAWMP). If the facility does not have a CAWMP, it must be completed prior to submittal of a permit application for animal waste operations.

TSJ

The CAWMP **must** include the following components. *Some of these components may not have been required at the time the facility was certified but must be added to the CAWMP for NPDES permitting purposes:*

- 3.3.1 The Waste Utilization Plan (WUP) must include the amount of Plant Available Nitrogen (PAN) and Phosphorus produced and utilized by the facility
- 3.3.2 The method by which waste is applied to the disposal fields (e.g. irrigation, injection, etc.)
- 3.3.3 A map of every field used for land application, with setbacks to surface waters or any conduits to surface waters (including field ditches), with the exception of grassed waterways that are designed and maintained according to NRCS standards.
- 3.3.4 The soil series present on every land application field
- 3.3.5 The crops grown on every land application field
- 3.3.6 The Realistic Yield Expectation (RYE) for every crop shown in the WUP
- 3.3.7 The PAN and Phosphorus applied to every land application field
- 3.3.8 The waste application windows for every crop utilized in the WUP
- 3.3.9 The required NRCS Standard specifications
- 3.3.10 A site schematic
- 3.3.11 Emergency Action Plan
- 3.3.12 Insect Control Checklist with chosen best management practices noted
- 3.3.13 Odor Control Checklist with chosen best management practices noted
- 3.3.14 Mortality Control Checklist with the selected method noted
- * 3.3.15 Lagoon/storage pond capacity documentation (design, calculations, etc.); please be sure to include any site evaluations, wetland determinations, or hazard classifications that may be applicable to your facility
- 3.3.16 Operation and Maintenance Plan

3.3.17 Phosphorus Loss Assessment Tool (PLAT) Results, including the data sheets for each field.

If your CAWMP includes any components not shown on this list, please include the additional components with your submittal. (Composting, waste transfers, etc.)

4. APPLICANT'S CERTIFICATION:

I, Billy Johnston (Land Owner's name listed in question 1.2), attest that this application for TAPROOT DAIRY (Facility name listed in question 1.1) has been reviewed by me and is accurate and complete to the best of my knowledge. I understand that if all required parts of this application are not completed and that if all required supporting information and attachments are not included, this application package will be returned to me as incomplete.

Signature Billy Johnston Date 6-18-14

5. MANAGER'S CERTIFICATION: (complete only if different from the Land Owner)

I, _____ (Manager's name listed in question 1.6), attest that this application for _____ (Facility name listed in question 1.1) has been reviewed by me and is accurate and complete to the best of my knowledge. I understand that if all required parts of this application are not completed and that if all required supporting information and attachments are not included, this application package will be returned as incomplete.

Signature _____ Date _____

THE COMPLETED APPLICATION PACKAGE, INCLUDING ALL SUPPORTING INFORMATION AND MATERIALS, SHOULD BE SENT TO THE FOLLOWING ADDRESS:

**NORTH CAROLINA DIVISION OF WATER RESOURCES
AQUIFER PROTECTION SECTION
ANIMAL FEEDING OPERATIONS UNIT
1636 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1636
TELEPHONE NUMBER: (919) 807-6464
FAX NUMBER: (919) 807-6496**

Animal Waste Management Plan Certification

(Please type or print all information that does not require a signature)

Existing or New or Expanded (please circle one)

General Information:

Permit No: _____

Name of Farm: Taproot Dairy, LLC

Facility No: 45--02

Owner(s) Name: Billy Johnston

Phone No: (828)777-7899

Mailing Address: 752 Butler Bridge Rd., Fletcher, NC 28732

Farm Location:

County Farm is located in: Henderson

Latitude and Longitude: 35°24'31.66" N/ 82°31'48.61"W

Integrator: n/a

Please attach a copy of a county road map with location identified and describe below (Be specific: road names, directions, milepost, etc.): On SR1345 Butler Bridge Rd. just East of the French Broad River and approximately 0.85 miles West of I-26.

Operation Description:

Type of Swine	No. of Animals	Type of Poultry	No. of Animals	Type of Dairy	No. of Animals
<input type="checkbox"/> Wean to Feeder	_____	<input type="checkbox"/> Layer	_____	<input type="checkbox"/> Milking	<u>800</u>
<input type="checkbox"/> Feeder to Finish	_____	<input type="checkbox"/> Non-Layer	_____	<input type="checkbox"/> Dry	_____
<input type="checkbox"/> Farrow to Wean	_____	Type of Beef	No. of Animals	<input type="checkbox"/> Heifers	_____
<input type="checkbox"/> Farrow to Feeder	_____	<input type="checkbox"/> Brood	_____	<input type="checkbox"/> Calves	_____
<input type="checkbox"/> Farrow to Finish	_____	<input type="checkbox"/> Feeders	_____		
<input type="checkbox"/> Gilts	_____	<input type="checkbox"/> Stockers	_____		
<input type="checkbox"/> Boars	_____	Other Type of Livestock:	_____	Number of Animals:	_____

Expanding Operation Only

Previous Design Capacity: _____ Additional Design Capacity: _____ Total Design Capacity: _____

Acreage Available for Application: 675

Required Acreage: 185

Number of waste structures: 2

Total Capacity: 485,768 Cubic Feet (ft³)

Are subsurface drains present on the farm: **YES** or **NO** (please circle one)

If **YES**: are subsurface drains present in the area of the waste structures (please circle one or both as applicable)

Owner / Manager Agreement

I (we) verify that all the above information is correct and will be updated upon changing. I (we) understand the operation and maintenance procedures established in the approved animal waste management plan for the farm named above and will implement these procedures. I (we) know that any expansion to the existing design capacity of the waste treatment and storage system or construction of new facilities will require a permit application and a new certification to be submitted to the Division of Water Resources (DWR) and permit approval received before the new animals are stocked. I (we) understand that there must be no discharge of animal waste from the storage system to surface waters of the state unless specifically allowed under a permit from DWR and there must not be run-off from the application of animal waste. I (we) understand that run-off of pollutants from lounging and heavy use areas must be minimized using technical standards developed by the USDA-Natural Resources Conservation Service (NRCS). The approved plan will be filed at the farm and at the DWR Regional Office and the office of the local Soil and Water Conservation District (SWCD). I (we) know that any modification must be approved by a technical specialist and submitted to the DWR Regional Office and local SWCD and required approvals received from DWR prior to implementation. A change in farm ownership requires a permit application to be sent to DWR along with a new certification (if the approved plan is changed).

Name of Land Owner: TAPROOT DAIRY

Signature: Billy Johnston

Date: 6-18-19

Name of Manager (if different from owner): _____

Signature: _____

Date: _____

Technical Specialist Certification

I. As a technical specialist designated by the North Carolina Soil and Water Conservation Commission pursuant to 15A NCAC 6H .0104, I certify that the animal waste management system for the farm named above has an animal waste management plan that meets or exceeds standards and specifications of the Division of Water Resources as specified in 15A NCAC 2T .1300 (formerly 2H .0217) and the USDA-Natural Resources Conservation Service and/or the North Carolina Soil and Water Conservation Commission pursuant to 15A NCAC 2T .1300 (formerly 2H .0217) and 15A NCAC 6F .0101-.0105. The following elements are included in the plan as applicable. While each category designates a technical specialist who may sign each certification (SD, SI, WUP, RC, I), the technical specialist should only certify parts for which they are technically competent.

II. Certification of Design

A) Collection, Storage, Treatment System

Check the appropriate box

924 ☒ **Existing facility without retrofit (SD or WUP)**

Storage volume is adequate for operation capacity; storage capability consistent with waste utilization requirements.

☐ **New, expanded or retrofitted facility (SD)**

Animal waste storage and treatment structures, such as but not limited to collection systems, lagoons and ponds, have been designed to meet or exceed the minimum standards and specifications.

Name of Technical Specialist (Please Print):

JEFFREY L. YOUNG

Affiliation NCDA & CS DIV OF SOIL & WATER CONSERVATION Date Work Completed: 05/27/14

Address (Agency): 1301 FANNING BRIDGE RD., FLETCHER, NC 28732 Phone No.: (828) 687-6987

Signature: Jeffrey L. Young Date: 05/27/14

B) Land Application Site (WUP)

The plan provides for minimum separations (buffers); adequate amount of land for waste utilization; chosen crop is suitable for waste management; and the hydraulic and nutrient loading rates are appropriate for the site and receiving crop.

Name of Technical Specialist (Please Print):

Joe Hudyncia

Affiliation NCDA & CS-DSWC Date Work Completed: 03/17/2014

Address (Agency): 585 Waughtown St., Winston-Salem, NC 27107 Phone No.: (336) 771-5053

Signature: Joe Hudyncia Date: 3/17/2014

C) Runoff Controls from Exterior Lots

Check the appropriate box

924 ☒ **Facility without exterior lots (SD or WUP or RC)**

This facility does not contain any exterior lots.

☐ **Facility with exterior lots (RC)**

Methods to minimize the run off of pollutants from lounging and heavy use areas have been designed in accordance with technical standards developed by NRCS.

Name of Technical Specialist (Please Print):

JEFFREY L. YOUNG

Affiliation NCDA & CS DIV OF SOIL & WATER CONSERVATION Date Work Completed: 05/17/14

Address (Agency): 1301 FANNING BRIDGE RD., FLETCHER, NC 28732 Phone No.: (828) 687-6987

Signature: Jeffrey L. Young Date: 05/27/14

Cell 704-881-3490

D). Application and Handling Equipment

Check the appropriate box

- ✓ Existing or expanding facility with existing waste application equipment (WUP or I)
Animal waste application equipment specified in the plan has been either field calibrated or evaluated in accordance with existing design charts and tables and is able to apply waste as necessary to accommodate the waste management plan: (existing application equipment can cover the area required by the plan at rates not to exceed either the specified hydraulic or nutrient loading rates, a schedule for timing of applications has been established; required buffers can be maintained and calibration and adjustment guidance are contained as part of the plan).
- o New, expanded, or existing facility without existing waste application equipment for spray irrigation. (I)
Animal waste application equipment specified in the plan has been designed to apply waste as necessary to accommodate the waste management plan; (proposed application equipment can cover the area required by the plan at rates not to exceed either the specified hydraulic or nutrient loading rates; a schedule for timing of applications has been established; required buffers can be maintained; calibration and adjustment guidance are contained as part of the plan).
- o New, expanded, or existing facility without existing waste application equipment for land spreading not using spray irrigation. (WUP or I)
Animal waste application equipment specified in the plan has been selected to apply waste as necessary to accommodate the waste management plan; (proposed application equipment can cover the area required by the plan at rates not to exceed either the specified hydraulic or nutrient loading rates; a schedule for timing of applications has been established; required buffers can be maintained; calibration and adjustment guidance are contained as part of the plan).

Name of Technical Specialist (Please Print): Joe Hudyncia

Affiliation NCDA&CS-DSWC Date Work Completed: 03/17/2014

Address (Agency): 585 Waughtown St., Winston-Salem, NC 27107 Phone No.: (336)771-5053

Signature:  Date: 3/17/2014

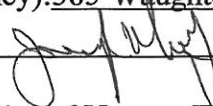
E) Odor Control, Insect Control, Mortality Management and Emergency Action Plan (SD, SI, WUP, RC or I)

The waste management plan for this facility includes a Waste Management Odor Control Checklist, an Insect Control Checklist, a Mortality Management Checklist and an Emergency Action Plan. Sources of both odors and insects have been evaluated with respect to this site and Best Management Practices to Minimize Odors and Best Management Practices to Control Insects have been selected and included in the waste management plan. Both the Mortality Management Plan and the Emergency Action Plan are complete and can be implemented by this facility.

Name of Technical Specialist (Please Print): Joe Hudyncia

Affiliation NCDA&CS-DSWC Date Work Completed: 03/17/2014

Address (Agency): 585 Waughtown St., Winston-Salem, NC 27107 Phone No.: (336)771-5053

Signature:  Date: 03/17/2014

F) Written Notice of New or Expanding Swine Farm

The following signature block is only to be used for new or expanding swine farms that begin construction after June 21, 1996. If the facility was built before June 21, 1996, when was it constructed or last expanded _____.

I (we) certify that I (we) have attempted to contact by certified mail all adjoining property owners and all property owners who own property located across a public road, street, or highway from this new or expanding swine farm. The notice was in compliance with the requirements of NCGS 106-805. A copy of the notice and a list of the property owners notified are attached.

Name of Land Owner: n/a

Signature: _____ Date: _____

Name of Manager (if different from owner): _____

Signature: _____ Date: _____

III. Certification of Installation

A) Collection, Storage, Treatment Installation

New, expanded or retrofitted facility (SI)

Animal waste storage and treatment structures, such as but not limited to lagoons and ponds, have been installed in accordance with the approved plan to meet or exceed the minimum standards and specifications.

For existing facilities without retrofits, no certification is necessary.

Name of Technical Specialist (Please Print): N/A
Affiliation _____ Date Work Completed: _____
Address (Agency): _____ Phone No.: _____
Signature: _____ Date: _____

B) Land Application Site (WUP)

The cropping system is in place on all land as specified in the animal waste management plan.

Name of Technical Specialist (Please Print): Joe Hudyncia
Affiliation NCDA&CS-DSWC Date Work Completed: 08/28/2014
Address (Agency): 585 Waughtown St., Winston-Salem, NC 27107 Phone No.: (336)771-5053
Signature: [Signature] Date: 3/17/2014

C) Runoff Controls from Exterior Lots (RC)

Facility with exterior lots

Methods to minimize the run off of pollutants from lounging and heavy use areas have been installed as specified in the plan.

For facilities without exterior lots, no certification is necessary.

Name of Technical Specialist (Please Print): N/A
Affiliation _____ Date Work Completed: _____
Address (Agency): _____ Phone No.: _____
Signature: _____ Date: _____

D) Application and Handling Equipment Installation (WUP or I)

- ☒ Animal waste application and handling equipment specified in the plan is on site and ready for use; calibration and adjustment materials have been provided to the owners and are contained as part of the plan.
- ☐ Animal waste application and handling equipment specified in the plan has not been installed but the owner has proposed leasing or third party application and has provided a signed contract; equipment specified in the contract agrees with the requirements of the plan; required buffers can be maintained; calibration and adjustment guidance have been provided to the owners and are contained as part of the plan.

Name of Technical Specialist (Please Print): Joe Hudyncia
Affiliation NCDA&CS-DSWC Date Work Completed: 8/28/2014
Address (Agency): 585 Waughtown St., Winston-Salem, NC 27107 Phone No.: (336)771-5053
Signature: [Signature] Date: 03/17/2014

E) Odor Control, Insect Control and Mortality Management (SD, SI, WUP, RC or I)

Methods to control odors and insects as specified in the Plan have been installed and are operational. The mortality management system as specified in the Plan has also been installed and is operational.

Name of Technical Specialist (Please Print): Joe Hudyncia

Affiliation NCDA&CS-DSWC Date Work Completed: 08/28/2014

Address (Agency): 585 Waughtown St., Winston-Salem, NC 27107 Phone No.: (336)771-5053

Signature:  Date: 03/17/2014

Please return the completed form to the Division of Water Resources at the following address:

**Department of Environment and Natural Resources
Division of Water Resources
Animal Feeding Operations Unit
1636 Mail Service Center
Raleigh, NC 27699-1636**

Please also remember to submit a copy of this form along with the complete Animal Waste Management Plan to the DWR Regional Office and the local Soil and Water Conservation District Office and to keep a copy in your files with your Animal Waste Management Plan.



North Carolina Department of Environment and Natural Resources
Division of Water Quality

Beverly Eaves Perdue
Governor

Coleen H. Sullins
Director

Dee Freeman
Secretary

May 6, 2011

Tap Root Dairy, LLC
Tap Root Dairy
735 Butler Bridge Road
Fletcher, NC 28732

Subject: Certificate of Coverage No. AWC450002
Tap Root Dairy
Cattle Waste Collection, Treatment,
Storage and Application System
Henderson County

Dear Tap Root Dairy, LLC:

In accordance with your renewal request, we are hereby forwarding to you this Certificate of Coverage (COC) issued to Tap Root Dairy, LLC, authorizing the operation of the subject animal waste management system in accordance with General Permit AWG200000.

This approval shall consist of the operation of this system including, but not limited to, the management and land application of animal waste as specified in the facility's Certified Animal Waste Management Plan (CAWMP) for the Tap Root Dairy, located in Henderson County, with an animal capacity of no greater than the following annual averages:

Dairy Calf:	Dry Cow:	Beef Brood Cow:
Dairy Heifer:	Beef Stocker Calf:	Other:
Milk Cow: 1250	Beef Feeder:	

Being reduced to 800

The COC shall be effective from the date of issuance until September 30, 2014, and shall hereby void Certificate of Coverage Number AWC450002 that was previously issued to this facility. Pursuant to this COC, you are authorized and required to operate the system in conformity with the conditions and limitations as specified in the General Permit, the facility's CAWMP, and this COC. An adequate system for collecting and maintaining the required monitoring data and operational information must be established for this facility. Any increase in waste production greater than the certified design capacity or increase in number of animals authorized by this COC (as provided above) will require a modification to the CAWMP and this COC and must be completed prior to actual increase in either wastewater flow or number of animals.

Please carefully read this COC and the enclosed State General Permit. Please pay careful attention to the record keeping and monitoring conditions in this permit. Record keeping forms are unchanged with this General Permit. Please continue to use the same record keeping forms.

If your Waste Utilization Plan (WUP) has been developed based on site-specific information, careful evaluation of future samples is necessary. Should your records show that the current WUP is inaccurate you will need to have a new WUP developed.

Existing COC

The issuance of this COC does not excuse the Permittee from the obligation to comply with all applicable laws, rules, standards, and ordinances (local, state, and federal), nor does issuance of a COC to operate under this permit convey any property rights in either real or personal property.

Per 15A NCAC 2T .0105(h) a compliance boundary is provided for the facility and no new water supply wells shall be constructed within the compliance boundary. Per NRCS standards a 100-foot separation shall be maintained between water supply wells and any lagoon, storage pond, or any wetted area of a spray field.

Please be advised that any violation of the terms and conditions specified in this COC, the General Permit or the CAWMP may result in the revocation of this COC, or penalties in accordance with NCGS 143-215.6A through 143-215.6C including civil penalties, criminal penalties, and injunctive relief.

If you wish to continue the activity permitted under the General Permit after the expiration date of the General Permit, then an application for renewal must be filed at least 180 days prior to expiration.

This COC is not automatically transferable. A name/ownership change application must be submitted to the Division prior to a name change or change in ownership.

If any parts, requirements, or limitations contained in this COC are unacceptable, you have the right to apply for an individual permit by contacting the Animal Feeding Operations Unit for information on this process. Unless such a request is made within 30 days, this COC shall be final and binding.

In accordance with Condition II.22 of the General Permit, waste application shall cease within four (4) hours of the time that the National Weather Service issues a Hurricane Warning, Tropical Storm Warning, or a Flood Watch associated with a tropical system for the county in which the facility is located. You may find detailed watch/warning information for your county by calling the Greenville/Spartanburg, SC National Weather Service office at (864) 848-3859, or by visiting their website at: www.erh.noaa.gov/er/gsp/

This facility is located in a county covered by our Asheville Regional Office. The Regional Office Aquifer Protection Staff may be reached at (828) 296-4500. If you need additional information concerning this COC or the General Permit, please contact the Animal Feeding Operations Unit staff at (919) 733-3221.

Sincerely,

for Coleen H. Sullins

Enclosure (General Permit AWG200000)

cc: (Certificate of Coverage only for all ccs)
Asheville Regional Office, Aquifer Protection Section
Henderson County Health Department
Henderson County Soil and Water Conservation District
APS Central Files (Permit No. AWC450002)
AFO Notebooks

Nutrient Management Plan For Animal Waste Utilization

09-09-2014

This plan has been prepared for:

Taproot Dairy, LLC
Billy Johnston
752 Butler Bridge Rd.
Fletcher, NC 28732
(828) 777-7899

This plan has been developed by:

Joe Hudyncia
NCDA&CS DSWC
585 Waughtown St.
Winston-Salem, NC 27107
(336) 771-5053

RECEIVED/DENR/DWR

OCT 16 2014


Water Quality Regional
Operations Section

Developer Signature

Type of Plan: Nutrient Management with Both Manure and Fertilizer

Owner/Manager/Producer Agreement

I (we) understand and agree to the specifications and the operation and maintenance procedures established in this nutrient management plan which includes an animal waste utilization plan for the farm named above. I have read and understand the Required Specifications concerning animal waste management that are included with this plan.



Signature (owner)

10-3-14

Date



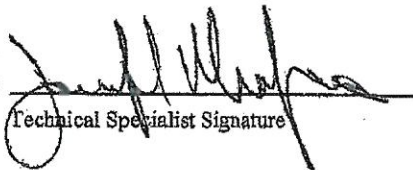
Signature (manager or producer)

10-3-14

Date

This plan meets the minimum standards and specifications of the U.S. Department of Agriculture - Natural Resources Conservation Service or the standard of practices adopted by the Soil and Water Conservation Commission.

Plan Approved By:



Technical Specialist Signature

9/9/2014

Date

Nutrients applied in accordance with this plan will be supplied from the following source(s):

Commercial Fertilizer is included in this plan.

S2	Dairy (Milk Cow) Liquid Manure Slurry waste generated 6,199,200 gals/year by a 800 animal Dairy (Milk Cow) Liquid Manure Slurry operation. This production facility has waste storage capacities of approximately 90 days.				
Estimated Pounds of Plant Available Nitrogen Generated per Year					
Broadcast	41427				
Incorporated	62141				
Injected	62141				
Irrigated	41427				
	Max. Avail. PAN (lbs) *	Actual PAN Applied (lbs)	PAN Surplus/ Deficit (lbs)	Actual Volume Applied (Gallons)	Volume Surplus/ Deficit (Gallons)
Year 1	41,427	155697	-114,270	27,212,687	-21,013,487

Note: In source ID, S means standard source, U means user defined source.

* Max. Available PAN is calculated on the basis of the actual application method(s) identified in the plan for this source.

Narrative

Notes JH 11/2013, updated 9/2014.

Source = 800 head holstein milk cows. 100% confinement in four main barns. Calves, heifers and dry cows are on pasture and do not typically contribute to the animal waste management system. Newborn calves are included in the annual steady state live weight of $(800 \times 1,400 = 1,120,000 \text{ lbs.})$.

For the main cow barns there are two Waste Storage Ponds. WSP1 volume = 344,810 cu. ft. x 7.48 gal/cu. ft. = 2,579,179 gal. WSP2 volume = 140,958 cu. ft. x 7.48 gal/cu. ft. = 1,054,365 gal. Total liquid storage volume = 485,768 cu. ft. x 7.48 gal/cu. ft. = 3,633,544 gal. Liquid waste is land applied through the existing traveling gun irrigation system.

There are three silage storage areas where leachate and rain runoff is captured and diverted to the Waste Storage Ponds. This volume contribution is factored into the 90-day storage capacity of the two Ponds (see attached drawings & calculations dated March 5, 2013). A Heat Exchanger/Plate Cooler also contributes additional daily water volume to the Storage Ponds along with the typical tank & pipeline sanitation (see same attached drawings).

Cows are milked in the parlor three times per day.

In the main milk cow barns cows are bedded with a 50/50 mix of sand and kiln-dried shavings. A solids separator is used to reclaim manure solids, which are stockpiled on site and then hauled to a third-party composting facility or to application fields for use as a nutrient source for crop production. A sand separator is also used to reclaim sand for single reuse in heifer and dry cow barns.

The land/cropping system has more than enough land to utilize the nutrients contained in the manure produced. There is approximately 4.4 times as much land/crops available as needed to utilize manure nutrients.

Crop note: Manure application to the corn silage crop has been set at 120 lbs. of Nitrogen for this Plan. The remainder of the required nitrogen for the corn crop (dependent upon soil type) is expected to come from commercial fertilizer.

Soils note: the NM Program database does not have data on realistic yields and N-rates for Toxaway silt loam with small grain silage as a crop. A yield of 11 tons per acre was established by associating expected yields of corn silage in relation to small grain silage across multiple soil types where data are available. The ratio was then used to associate an expected small grain silage yield based on available corn silage yield data for the Toxaway silt loam soil type. Also, the NM Program does not have data on realistic yields and N-rates for small grain silage grown on the Codorus loam soil type. The yield of 8 tons per acre was obtained from the NCSU Realistic Yields Database available at: <http://nutrients.soil.ncsu.edu/yields/>. In the Plan both of these changes are indicated by an asterisk in the Waste Utilization section.

The table shown below provides a summary of the crops or rotations included in this plan for each field. Realistic Yield estimates are also provided for each crop, as well as the crop's P2O5 Removal Rate. The Leaching Index (LI) and the Phosphorous Loss Assessment Tool (PLAT) Rating are also provided for each field, where available.

If a field's PLAT Rating is High, any planned manure application is limited to the phosphorous removal rate of the harvested plant biomass for the crop rotation or multiple years in the crop sequence. Fields with a Very High PLAT Rating should receive no additional applications of manure. Regardless of the PLAT rating, starter fertilizers may be recommended in accordance with North Carolina State University guidelines or recommendations. The quantity of P2O5 applied to each crop is shown in the following table if the field's PLAT rating is High or Very High.

Planned Crops Summary

Tract	Field	Total Acres	Useable Acres	Plat Rating	LI	Soil Series	Crop Sequence	RYE	P2O5	
									Removal (lbs/acre)	Applied (lbs/acre)
568	13 /	9.74	9.74	Medium	13.0	Toxaway	Small Grain, Silage	11.0 Tons	59	N/A
							Corn, Silage	28.0 Tons	95	N/A
568	14 /	4.63	4.40	Low	13.0	Toxaway	Small Grain, Silage	11.0 Tons	59	N/A
							Corn, Silage	28.0 Tons	95	N/A
568	15 /	40.80	39.70	Low	29.0	Rosman	Small Grain, Silage	12.0 Tons	65	N/A
							Corn, Silage	32.0 Tons	109	N/A
568	17 /	12.28	12.00	Medium	13.0	Toxaway	Small Grain, Silage	11.0 Tons	59	N/A
							Corn, Silage	28.0 Tons	95	N/A
568	18 /	28.50	28.50	Low	29.0	Rosman	Small Grain, Silage	12.0 Tons	65	N/A
							Corn, Silage	32.0 Tons	109	N/A
568	19 /	5.80	5.59	Medium	16.0	Delanco	Small Grain, Silage	7.3 Tons	39	N/A
							Corn, Silage	22.5 Tons	77	N/A
568	20 /	12.80	12.80	Medium	16.0	Delanco	Small Grain, Silage	7.3 Tons	39	N/A
							Corn, Silage	22.5 Tons	77	N/A
568	21 /	12.97	12.60	Medium	13.0	Toxaway	Small Grain, Silage	11.0 Tons	59	N/A
							Corn, Silage	28.0 Tons	95	N/A
568	22 /	5.56	5.47	Low	13.0	Toxaway	Small Grain, Silage	11.0 Tons	59	N/A
							Corn, Silage	28.0 Tons	95	N/A
568	23 /	5.87	5.71	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
568	24	1.99	1.99	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
568	25	10.80	10.80	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
568	26	19.10	18.80	Medium	16.0	Delanco	Small Grain, Silage	7.3 Tons	39	N/A
							Corn, Silage	22.5 Tons	77	N/A
568	28	13.56	13.40	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A

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NOTE: Symbol * means user entered data.

Planned Crops Summary

Tract	Field	Total Acres	Useable Acres	Plat Rating	LI	Soil Series	Crop Sequence	RYE	P2O5	
									Removal (lbs/acre)	Applied (lbs/acre)
568	29	19.20	19.20	Medium	16.0	Delanco	Small Grain, Silage	7.3 Tons	39	N/A
							Corn, Silage	22.5 Tons	77	N/A
568	30	1.97	1.94	Low	13.0	Toxaway	Small Grain, Silage	11.0 Tons	59	N/A
							Corn, Silage	28.0 Tons	95	N/A
568	31	36.00	35.50	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
568	32	16.90	16.90	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
568	33a	28.00	28.00	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
568	33b	28.29	28.00	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
568	34a	28.70	27.80	Low	29.0	Rosman	Small Grain, Silage	12.0 Tons	65	N/A
							Corn, Silage	32.0 Tons	109	N/A
568	34b	14.62	14.40	Low	13.0	Toxaway	Small Grain, Silage	11.0 Tons	59	N/A
							Corn, Silage	28.0 Tons	95	N/A
568	34c	2.87	2.81	Medium	16.0	Delanco	Small Grain, Silage	7.3 Tons	39	N/A
							Corn, Silage	22.5 Tons	77	N/A
568	34d	21.80	21.80	Low	29.0	Rosman	Small Grain, Silage	12.0 Tons	65	N/A
							Corn, Silage	32.0 Tons	109	N/A
849	05	9.28	9.24	Low	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	06 BR	6.20	0.72	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
849	06 P12	6.20	5.48	Medium	16.0	Delanco	Small Grain, Silage	7.5 Tons	41	N/A
							Corn, Silage	23.0 Tons	78	N/A
849	07a BR	19.40	4.82	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	07a P10	19.40	14.58	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	07b P11	14.58	14.58	Low	21.0	Bradson	Fescue Hay	5.9 Tons	93	N/A
849	09 BR	22.70	3.88	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	09 P8	22.70	7.51	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	09 P9	22.70	11.31	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A

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Planned Crops Summary

Tract	Field	Total Acres	Useable Acres	Plat Rating	LI	Soil Series	Crop Sequence	R/YE	P2O5	
									Removal (lbs/acre)	Applied (lbs/acre)
849	10 BR	13.60	3.82	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	10 P7	13.60	9.78	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	11 BR	80.60	6.19	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	11 P1	80.60	10.18	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	11 P2	80.60	12.40	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	11 P3	80.60	13.31	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	11 P4	80.60	12.81	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	11 P5	80.60	12.40	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	11 P6	80.60	13.31	Medium	21.0	Bradson	Small Grain, Silage	11.8 Tons	64	N/A
							Corn, Silage	17.6 Tons	60	N/A
849	12 P13	46.22	9.57	Low	21.0	Colvard	Small Grain, Silage	9.0 Tons	49	N/A
							Corn, Silage	24.0 Tons	82	N/A
849	12 P14	46.22	9.42	Low	21.0	Colvard	Small Grain, Silage	9.0 Tons	49	N/A
							Corn, Silage	24.0 Tons	82	N/A
849	12 P15	46.22	5.01	Low	21.0	Colvard	Small Grain, Silage	9.0 Tons	49	N/A
							Corn, Silage	24.0 Tons	82	N/A
849	12 P16	46.22	7.51	Low	21.0	Colvard	Small Grain, Silage	9.0 Tons	49	N/A
							Corn, Silage	24.0 Tons	82	N/A
849	12 P17	46.22	5.14	Low	21.0	Colvard	Small Grain, Silage	9.0 Tons	49	N/A
							Corn, Silage	24.0 Tons	82	N/A
849	12 P18	46.22	9.57	Low	21.0	Colvard	Small Grain, Silage	9.0 Tons	49	N/A
							Corn, Silage	24.0 Tons	82	N/A
967	01a	30.51	30.51	Low	21.0	Colvard	Small Grain, Silage	9.0 Tons	49	N/A
							Corn, Silage	24.0 Tons	82	N/A
967	01b	12.49	12.49	Medium	16.0	Delanco	Small Grain, Silage	7.3 Tons	39	N/A
							Corn, Silage	22.5 Tons	77	N/A
967	02	15.27	12.90	Medium	16.0	Delanco	Small Grain, Silage	7.3 Tons	39	N/A
							Corn, Silage	22.5 Tons	77	N/A
967	03	5.87	4.62	Medium	13.0	Codorus	Small Grain, Silage	*8.0 Tons	43	N/A

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Planned Crops Summary

Tract	Field	Total Acres	Useable Acres	Plat Rating	LI	Soil Series	Crop Sequence	RYE	P2O5	
									Removal (lbs/acre)	Applied (lbs/acre)
							Corn, Silage	26.0 Tons	88	N/A
968	01	27.53	26.40	Medium	13.0	Codorus	Small Grain, Silage	*8.0 Tons	43	N/A
							Corn, Silage	26.0 Tons	88	N/A
968	02	16.40	16.40	Medium	13.0	Codorus	Small Grain, Silage	*8.0 Tons	43	N/A
							Corn, Silage	26.0 Tons	88	N/A

PLAN TOTALS: 1,502.70 693.71

LI	Potential Leaching	Technical Guidance
< 2	Low potential to contribute to soluble nutrient leaching below the root zone.	None
>= 2 & <= 10	Moderate potential to contribute to soluble nutrient leaching below the root zone.	Nutrient Management (590) should be planned.
> 10	High potential to contribute to soluble nutrient leaching below the root zone.	Nutrient Management (590) should be planned. Other conservation practices that improve the soils available water holding capacity and improve nutrient use efficiency should be considered. Examples are Cover Crops (340) to scavenge nutrients, Sod-Based Rotations (328), Long-Term No-Till (778), and edge-of-field practices such as Filter Strips (393) and Riparian Forest Buffers (391).

PLAT Index	Rating	P Management Recommendation
0 - 25	Low	No adjustment needed; N based application
25 - 50	Medium	No adjustment needed; N based application
51 - 100	High	Application limited to crop P removal
> 100	Very High	Starter P application only

The Waste Utilization table shown below summarizes the waste utilization plan for this operation. This plan provides an estimate of the number of acres of cropland needed to use the nutrients being produced. The plan requires consideration of the realistic yields of the crops to be grown, their nutrient requirements, and proper timing of applications to maximize nutrient uptake.

This table provides an estimate of the amount of nitrogen required by the crop being grown and an estimate of the nitrogen amount being supplied by manure or other by-products, commercial fertilizer and residual from previous crops. An estimate of the quantity of solid and liquid waste that will be applied on each field in order to supply the indicated quantity of nitrogen from each source is also included. A balance of the total manure produced and the total manure applied is included in the table to ensure that the plan adequately provides for the utilization of the manure generated by the operation.

Waste Utilization Table

Year 1

Tract	Field	Source ID	Soil Series	Total Acres	Use, Acres	Crop	RYE	Applic. Period	Nitrogen PA Req'd (lbs/A)	Comm. Fert. Nutrient Applied (lbs/A)	Res. (lbs/A)	Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liquid Manure Applied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (Field)	Solid Manure Applied (Field)
568	13	S2	Toxaway	9.74	9.74	Small Grain, Silage	*11.0	9/1-3/31	*113	0	0	Broad.	113	16.91	0.00	164.70	0.00
568	13	S2	Toxaway	9.74	9.74	Corn, Silage	28.0	2/15-6/30	286	166	0	Broad.	120	17.96	0.00	174.90	0.00
568	14	S2	Toxaway	4.63	4.40	Small Grain, Silage	*11.0	9/1-3/31	*113	0	0	Broad.	113	16.91	0.00	74.40	0.00
568	14	S2	Toxaway	4.63	4.40	Corn, Silage	28.0	2/15-6/30	286	166	0	Broad.	120	17.96	0.00	79.01	0.00
568	15	S2	Rosman	40.80	39.70	Small Grain, Silage	12.0	9/1-3/31	133	0	0	Broad.	133	19.90	0.00	790.12	0.00
568	15	S2	Rosman	40.80	39.70	Corn, Silage	32.0	2/15-6/30	349	229	0	Broad.	120	17.96	0.00	712.89	0.00
568	17	S2	Toxaway	12.28	12.00	Small Grain, Silage	*11.0	9/1-3/31	*113	0	0	Broad.	113	16.91	0.00	202.91	0.00
568	17	S2	Toxaway	12.28	12.00	Corn, Silage	28.0	2/15-6/30	286	166	0	Broad.	120	17.96	0.00	215.48	0.00
568	18	S2	Rosman	28.50	28.50	Small Grain, Silage	12.0	9/1-3/31	133	0	0	Broad.	133	19.90	0.00	567.21	0.00
568	18	S2	Rosman	28.50	28.50	Corn, Silage	32.0	2/15-6/30	349	229	0	Broad.	120	17.96	0.00	511.77	0.00
568	19	S2	Delanco	5.80	5.59	Small Grain, Silage	7.3 Tons	9/1-3/31	79	0	0	Broad.	79	11.82	0.00	66.08	0.00
568	19	S2	Delanco	5.80	5.59	Corn, Silage	22.5	2/15-6/30	241	121	0	Broad.	120	17.96	0.00	100.38	0.00
568	20	S2	Delanco	12.80	12.80	Small Grain, Silage	7.3 Tons	9/1-3/31	79	0	0	Broad.	79	11.82	0.00	151.32	0.00
568	20	S2	Delanco	12.80	12.80	Corn, Silage	22.5	2/15-6/30	241	121	0	Broad.	120	17.96	0.00	229.85	0.00
568	21	S2	Toxaway	12.97	12.60	Small Grain, Silage	*11.0	9/1-3/31	*113	0	0	Broad.	113	16.91	0.00	213.06	0.00
568	21	S2	Toxaway	12.97	12.60	Corn, Silage	28.0	2/15-6/30	286	166	0	Broad.	120	17.96	0.00	226.26	0.00

Waste Utilization Table

Year 1

Tract	Field	Source ID	Soil Series	Total Acres	Use Acres	Crop	RYE	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)		Comm. Fert. Nutrient Applied (lbs/A)		Res. (lbs/A)	Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liquid Manure Applied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (F field)	Solid Manure Applied (F field)
									N	N	N	N							
568	22	S2	Toxaway	5.56	5.47	Small Grain, Silage	*11.0	9/1-3/31	*113	0	0	0	0	Broad.	113	16.91	0.00	92.49	0.00
568	22	S2	Toxaway	5.56	5.47	Corn, Silage	28.0	2/15-6/30	286	166	0	0	0	Broad.	120	17.96	0.00	98.22	0.00
568	23	S2	Delanco	5.87	5.71	Small Grain, Silage	7.5 Tons	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	69.21	0.00
568	23	S2	Delanco	5.87	5.71	Corn, Silage	23.0	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	102.53	0.00
568	24	S2	Delanco	1.99	1.99	Small Grain, Silage	7.5 Tons	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	24.12	0.00
568	24	S2	Delanco	1.99	1.99	Corn, Silage	23.0	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	35.73	0.00
568	25	S2	Delanco	10.80	10.80	Small Grain, Silage	7.5 Tons	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	130.91	0.00
568	25	S2	Delanco	10.80	10.80	Corn, Silage	23.0	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	193.94	0.00
568	26	S2	Delanco	19.10	18.80	Small Grain, Silage	7.3 Tons	9/1-3/31	79	0	0	0	0	Broad.	79	11.82	0.00	222.25	0.00
568	26	S2	Delanco	19.10	18.80	Corn, Silage	22.5	2/15-6/30	241	121	0	0	0	Broad.	120	17.96	0.00	337.59	0.00
568	28	S2	Delanco	13.56	13.40	Small Grain, Silage	7.5 Tons	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	162.42	0.00
568	28	S2	Delanco	13.56	13.40	Corn, Silage	23.0	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	240.62	0.00
568	29	S2	Delanco	19.20	19.20	Small Grain, Silage	7.3 Tons	9/1-3/31	79	0	0	0	0	Broad.	79	11.82	0.00	226.98	0.00
568	29	S2	Delanco	19.20	19.20	Corn, Silage	22.5	2/15-6/30	241	121	0	0	0	Broad.	120	17.96	0.00	344.77	0.00
568	30	S2	Toxaway	1.97	1.94	Small Grain, Silage	*11.0	9/1-3/31	*113	0	0	0	0	Broad.	113	16.91	0.00	32.80	0.00
568	30	S2	Toxaway	1.97	1.94	Corn, Silage	28.0	2/15-6/30	286	166	0	0	0	Broad.	120	17.96	0.00	34.84	0.00
568	31	S2	Delanco	36.00	35.50	Small Grain, Silage	7.5 Tons	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	430.29	0.00
568	31	S2	Delanco	36.00	35.50	Corn, Silage	23.0	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	637.47	0.00
568	32	S2	Delanco	16.90	16.90	Small Grain, Silage	7.5 Tons	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	204.84	0.00
568	32	S2	Delanco	16.90	16.90	Corn, Silage	23.0	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	303.47	0.00
568	33a	S2	Delanco	28.00	28.00	Small Grain, Silage	7.5 Tons	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	339.39	0.00
568	33a	S2	Delanco	28.00	28.00	Corn, Silage	23.0	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	502.79	0.00

Waste Utilization Table

Year 1

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)		Comm Fert. Nutrient Applied (lbs/A)		Res. (lbs/A)	Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liquid Manure Applied (acre)	Solid Manure Applied (Field)	Solid Manure Applied (Field)
								N	N	N	N						tons
568	33b	S2	Delanco	28.29	28.00	Small Grain, Silage	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	339.39
568	33b	S2	Delanco	28.29	28.00	Corn, Silage	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	502.79
568	34a	S2	Rosman	28.70	27.80	Small Grain, Silage	9/1-3/31	133	0	0	0	0	Broad.	133	19.90	0.00	553.28
568	34a	S2	Rosman	28.70	27.80	Corn, Silage	2/15-6/30	349	229	0	0	0	Broad.	120	17.96	0.00	499.20
568	34b	S2	Toxaway	14.62	14.40	Small Grain, Silage	*11.0 9/1-3/31	*113	0	0	0	0	Broad.	113	16.91	0.00	243.50
568	34b	S2	Toxaway	14.62	14.40	Corn, Silage	2/15-6/30	286	166	0	0	0	Broad.	120	17.96	0.00	258.58
568	34c	S2	Delanco	2.87	2.81	Small Grain, Silage	9/1-3/31	79	0	0	0	0	Broad.	79	11.82	0.00	33.22
568	34c	S2	Delanco	2.87	2.81	Corn, Silage	2/15-6/30	241	121	0	0	0	Broad.	120	17.96	0.00	50.46
568	34d	S2	Rosman	21.80	21.80	Small Grain, Silage	9/1-3/31	133	0	0	0	0	Broad.	133	19.90	0.00	433.87
568	34d	S2	Rosman	21.80	21.80	Corn, Silage	2/15-6/30	349	229	0	0	0	Broad.	120	17.96	0.00	391.46
849	05	S2	Bradson	9.28	9.24	Small Grain, Silage	9/1-3/31	125	0	0	0	0	Broad.	125	18.71	0.00	172.84
849	05	S2	Bradson	9.28	9.24	Corn, Silage	2/15-6/30	183	63	0	0	0	Broad.	120	17.96	0.00	165.92
849	06 BR	S2	Delanco	6.20	0.72	Small Grain, Silage	9/1-3/31	81	0	0	0	0	Broad.	81	12.12	0.00	74.18
849	06 BR	S2	Delanco	6.20	0.72	Corn, Silage	2/15-6/30	246	126	0	0	0	Broad.	120	17.96	0.00	109.90
849	06 P12	S2	Delanco	6.20	5.48	Small Grain, Silage	9/1-3/31	81	0	0	0	0	Irrig.	81	12.12	0.00	66.42
849	06 P12	S2	Delanco	6.20	5.48	Corn, Silage	2/15-6/30	246	126	0	0	0	Irrig.	120	17.96	0.00	98.40
849	07a BR	S2	Bradson	19.40	4.82	Small Grain, Silage	9/1-3/31	125	0	0	0	0	Broad.	125	18.71	0.00	337.25
849	07a BR	S2	Bradson	19.40	4.82	Corn, Silage	2/15-6/30	183	63	0	0	0	Broad.	120	17.96	0.00	323.76
849	07a P10	S2	Bradson	19.40	14.58	Small Grain, Silage	9/1-3/31	125	0	0	0	0	Irrig.	125	18.71	0.00	272.72
849	07a P10	S2	Bradson	19.40	14.58	Corn, Silage	2/15-6/30	183	63	0	0	0	Irrig.	120	17.96	0.00	261.81
849	07b P11	S2	Bradson	14.58	14.58	Fescue Hay	8/1-7/31	249	0	0	0	0	Broad.	249	37.26	0.00	543.26
849	09 BR	S2	Bradson	22.70	3.88	Small Grain, Silage	9/1-3/31	125	0	0	0	0	Broad.	125	18.71	0.00	352.03

Waste Utilization Table

Year 1

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	Applic. Period		Nitrogen PA Nutrient Req'd Applied (lbs/A)		Comm. Fert. Nutrient Applied (lbs/A)		Res. (lbs/A)		Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liquid Manure Applied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (Field)	Solid Manure Applied (Field)
							RYE		N	N	N	N	N	N						
849	09 BR	S2	Bradson	22.70	3.88	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Broad.	120	17.96	0.00	337.95	0.00
849	09 P8	S2	Bradson	22.70	7.51	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	140.48	0.00
849	09 P8	S2	Bradson	22.70	7.51	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	134.86	0.00
849	09 P9	S2	Bradson	22.70	11.31	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	211.56	0.00
849	09 P9	S2	Bradson	22.70	11.31	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	203.09	0.00
849	10 BR	S2	Bradson	13.60	3.82	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Broad.	125	18.71	0.00	182.94	0.00
849	10 BR	S2	Bradson	13.60	3.82	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Broad.	120	17.96	0.00	175.62	0.00
849	10 P7	S2	Bradson	13.60	9.78	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	182.94	0.00
849	10 P7	S2	Bradson	13.60	9.78	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	175.62	0.00
849	11 BR	S2	Bradson	80.60	6.19	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Broad.	125	18.71	0.00	1,391.85	0.00
849	11 BR	S2	Bradson	80.60	6.19	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Broad.	120	17.96	0.00	1,336.17	0.00
849	11 P1	S2	Bradson	80.60	10.18	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	190.42	0.00
849	11 P1	S2	Bradson	80.60	10.18	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	182.80	0.00
849	11 P2	S2	Bradson	80.60	12.40	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	231.94	0.00
849	11 P2	S2	Bradson	80.60	12.40	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	222.67	0.00
849	11 P3	S2	Bradson	80.60	13.31	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	248.97	0.00
849	11 P3	S2	Bradson	80.60	13.31	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	239.01	0.00
849	11 P4	S2	Bradson	80.60	12.81	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	239.61	0.00
849	11 P4	S2	Bradson	80.60	12.81	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	230.03	0.00
849	11 P5	S2	Bradson	80.60	12.40	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	231.94	0.00
849	11 P5	S2	Bradson	80.60	12.40	Corn, Silage	17.6	2/15-6/30	183	63	0	0	0	0	Irrig.	120	17.96	0.00	222.67	0.00
849	11 P6	S2	Bradson	80.60	13.31	Small Grain, Silage	11.8	9/1-3/31	125	0	0	0	0	0	Irrig.	125	18.71	0.00	248.97	0.00

Waste Utilization Table

Year 1

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	RYE	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)		Comm. Fert. Nutrient Applied (lbs/A)		Res. (lbs/A)	Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liquid Manure Applied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (Field)	Solid Manure Applied (Field)
									N	N	N	N							
849	11 P6	S2	Bradson	80.60	13.31	Corn, Silage	17.6	2/15-6/30	183	63	0	0	Irrig.	120	17.96	0.00	239.01	0.00	
849	12 P13	S2	Colvard	46.22	9.57	Small Grain, Silage	9.0 Tons	9/1-3/31	95	0	0	0	Irrig.	95	14.22	0.00	136.05	0.00	
849	12 P13	S2	Colvard	46.22	9.57	Corn, Silage	24.0	2/15-6/30	250	130	0	0	Irrig.	120	17.96	0.00	171.85	0.00	
849	12 P14	S2	Colvard	46.22	9.42	Small Grain, Silage	9.0 Tons	9/1-3/31	95	0	0	0	Irrig.	95	14.22	0.00	133.91	0.00	
849	12 P14	S2	Colvard	46.22	9.42	Corn, Silage	24.0	2/15-6/30	250	130	0	0	Irrig.	120	17.96	0.00	169.15	0.00	
849	12 P15	S2	Colvard	46.22	5.01	Small Grain, Silage	9.0 Tons	9/1-3/31	95	0	0	0	Irrig.	95	14.22	0.00	71.22	0.00	
849	12 P15	S2	Colvard	46.22	5.01	Corn, Silage	24.0	2/15-6/30	250	130	0	0	Irrig.	120	17.96	0.00	89.96	0.00	
849	12 P16	S2	Colvard	46.22	7.51	Small Grain, Silage	9.0 Tons	9/1-3/31	95	0	0	0	Irrig.	95	14.22	0.00	106.76	0.00	
849	12 P16	S2	Colvard	46.22	7.51	Corn, Silage	24.0	2/15-6/30	250	130	0	0	Irrig.	120	17.96	0.00	134.86	0.00	
849	12 P17	S2	Colvard	46.22	5.14	Small Grain, Silage	9.0 Tons	9/1-3/31	95	0	0	0	Irrig.	95	14.22	0.00	73.07	0.00	
849	12 P17	S2	Colvard	46.22	5.14	Corn, Silage	24.0	2/15-6/30	250	130	0	0	Irrig.	120	17.96	0.00	92.30	0.00	
849	12 P18	S2	Colvard	46.22	9.57	Small Grain, Silage	9.0 Tons	9/1-3/31	95	0	0	0	Irrig.	95	14.22	0.00	136.05	0.00	
849	12 P18	S2	Colvard	46.22	9.57	Corn, Silage	24.0	2/15-6/30	250	130	0	0	Irrig.	120	17.96	0.00	171.85	0.00	
967	01a	S2	Colvard	30.51	30.51	Small Grain, Silage	9.0 Tons	9/1-3/31	95	0	0	0	Broad.	95	14.22	0.00	433.73	0.00	
967	01a	S2	Colvard	30.51	30.51	Corn, Silage	24.0	2/15-6/30	250	130	0	0	Broad.	120	17.96	0.00	547.87	0.00	
967	01b	S2	Delanco	12.49	12.49	Small Grain, Silage	7.3 Tons	9/1-3/31	79	0	0	0	Broad.	79	11.82	0.00	147.65	0.00	
967	01b	S2	Delanco	12.49	12.49	Corn, Silage	22.5	2/15-6/30	241	121	0	0	Broad.	120	17.96	0.00	224.28	0.00	
967	02	S2	Delanco	15.27	12.90	Small Grain, Silage	7.3 Tons	9/1-3/31	79	0	0	0	Broad.	79	11.82	0.00	152.50	0.00	
967	02	S2	Delanco	15.27	12.90	Corn, Silage	22.5	2/15-6/30	241	121	0	0	Broad.	120	17.96	0.00	231.64	0.00	
967	03	S2	Codorus	5.87	4.62	Small Grain, Silage	*8.0	9/1-3/31	*85	0	0	0	Broad.	85	12.72	0.00	58.76	0.00	
967	03	S2	Codorus	5.87	4.62	Corn, Silage	26.0	2/15-6/30	270	150	0	0	Broad.	120	17.96	0.00	82.96	0.00	
968	01	S2	Codorus	27.53	26.40	Small Grain, Silage	*8.0	9/1-3/31	*85	0	0	0	Broad.	85	12.72	0.00	335.79	0.00	

Waste Utilization Table

Year 1

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	RYE	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)		Comm. Fert. Nutrient Applied (lbs/A)		Res. (lbs/A)		Applic. Method	Manure PA Nutrient Applied (lbs/A)		Liquid Manure Applied (acre)		Solid Manure Applied (acre)		Liquid Manure Applied (Field)		Solid Manure Applied (Field)	
									N	N	N	N	N	N		N	N	1000 gal/A	Tons	Tons	1000 gals	tons			
968	01	S2	Codorus	27.53	26.40	Corn, Silage	26.0	2/15-6/30	270	150	0	Broad.	120	17.96	0.00	474.06	0.00								
968	02	S2	Codorus	16.40	16.40	Small Grain, Silage	*8.0	9/1-3/31	*85	0	0	Broad.	85	12.72	0.00	208.60	0.00								
968	02	S2	Codorus	16.40	16.40	Corn, Silage	26.0	2/15-6/30	270	150	0	Broad.	120	17.96	0.00	294.49	0.00								
Total Applied, 1000 gallons																	27,212.69								
Total Produced, 1000 gallons																	6,199.20								
Balance, 1000 gallons																	-21,013.49								
Total Applied, tons																	0.00								
Total Produced, tons																	0.00								
Balance, tons																	0.00								

Notes: 1. In the tract column, ~ symbol means leased, otherwise, owned. 2. Symbol * means user entered data.

The Irrigation Application Factors for each field in this plan are shown in the following table. Infiltration rate varies with soils. If applying waste nutrients through an irrigation system, you must apply at a rate that will not result in runoff. This table provides the maximum application rate per hour that may be applied to each field selected to receive wastewater. It also lists the maximum application amount that each field may receive in any one application event.

Irrigation Application Factors

Tract	Field	Soil Series	Application Rate (inches/hour)	Application Amount (inches)
849	06 P12	Delanco	0.35	1.0
849	07a P10	Bradson	0.60	1.0
849	09 P8	Bradson	0.60	1.0
849	09 P9	Bradson	0.60	1.0
849	10 P7	Bradson	0.60	1.0
849	11 P1	Bradson	0.60	1.0
849	11 P2	Bradson	0.60	1.0
849	11 P3	Bradson	0.60	1.0
849	11 P4	Bradson	0.60	1.0
849	11 P5	Bradson	0.60	1.0
849	11 P6	Bradson	0.60	1.0
849	12 P13	Colvard	0.45	1.0
849	12 P14	Colvard	0.45	1.0
849	12 P15	Colvard	0.45	1.0
849	12 P16	Colvard	0.45	1.0
849	12 P17	Colvard	0.45	1.0
849	12 P18	Colvard	0.45	1.0

The Nutrient Management Recommendations table shown below provides an annual summary of the nutrient management plan developed for this operation. This table provides a nutrient balance for the listed fields and crops for each year of the plan. Required nutrients are based on the realistic yields of the crops to be grown, their nutrient requirements and soil test results. The quantity of nutrient supplied by each source is also identified.

The total quantity of nitrogen applied to each crop should not exceed the required amount. However, the quantity of other nutrients applied may exceed their required amounts. This most commonly occurs when manure or other byproducts are utilized to meet the nitrogen needs of the crop. Nutrient management plans may require that the application of animal waste be limited so as to prevent over application of phosphorous when excessive levels of this nutrient are detected in a field. In such situations, additional nitrogen applications from nonorganic sources may be required to supply the recommended amounts of nitrogen.

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	13	Req'd Nutrients	*113	10	10	0	0	0	0	0
Acres	App. Period	9.74	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*11.0 Tons	02-06-12	Manure	113	154	261	80	3	4	1	0
P Removal	Rating	59 lbs/ac.	Medium	BALANCE	0	144	251	80	3	4	1	0
Tract	Field	568	13	Req'd Nutrients	286	30	50	0	0	0	0	0
Acres	App. Period	9.74	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	166	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	28.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	95 lbs/ac.	Medium	BALANCE	0	134	227	85	3	4	1	0
Tract	Field	568	14	Req'd Nutrients	*113	10	10	0	0	0	0	0
Acres	App. Period	4.40	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*11.0 Tons	02-06-12	Manure	113	154	261	80	3	4	1	0
P Removal	Rating	59 lbs/ac.	Low	BALANCE	0	144	251	80	3	4	1	0
Tract	Field	568	14	Req'd Nutrients	286	30	50	0	0	0	0	0
Acres	App. Period	4.40	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	166	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	28.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	95 lbs/ac.	Low	BALANCE	0	134	227	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	15	Req'd Nutrients	133	60	60	0	0	0	0	0
Acres	App. Period	39.70	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	12.0 Tons	04-01-13	Manure	133	181	307	95	4	4	1	0
P Removal	Rating	65 lbs/ac.	Low	BALANCE	0	121	247	95	4	4	1	0
Tract	Field	568	15	Req'd Nutrients	349	70	120	0	0	0	0	0
Acres	App. Period	39.70	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	229	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	32.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	109 lbs/ac.	Low	BALANCE	0	94	157	85	3	4	1	0
Tract	Field	568	17	Req'd Nutrients	*113	0	40	0	0	0	0	0
Acres	App. Period	12.00	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*11.0 Tons	04-01-13	Manure	113	154	261	80	3	4	1	0
P Removal	Rating	59 lbs/ac.	Medium	BALANCE	0	154	221	80	3	4	1	0
Tract	Field	568	17	Req'd Nutrients	286	0	100	0	0	0	0	0
Acres	App. Period	12.00	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	166	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	28.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	95 lbs/ac.	Medium	BALANCE	0	164	177	85	3	4	1	0
Tract	Field	568	18	Req'd Nutrients	133	0	60	0	0	0	0	0
Acres	App. Period	28.50	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	12.0 Tons	04-01-13	Manure	133	181	307	95	4	4	1	0
P Removal	Rating	65 lbs/ac.	Low	BALANCE	0	181	247	95	4	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	18	Req'd Nutrients	349	0	110	0	0	0	0	0
Acres	App. Period	28.50	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	229	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	32.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	109 lbs/ac.	Low	BALANCE	0	164	167	85	3	4	1	0
Tract	Field	568	19	Req'd Nutrients	79	0	70	0	0	0	0	1
Acres	App. Period	5.59	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	1
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.3 Tons	04-01-13	Manure	79	108	182	56	2	2	1	0
P Removal	Rating	39 lbs/ac.	Medium	BALANCE	0	108	112	56	2	2	1	0
Tract	Field	568	19	Req'd Nutrients	241	0	130	0	0	0	0	0
Acres	App. Period	5.59	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	121	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	22.5 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	77 lbs/ac.	Medium	BALANCE	0	164	147	85	3	4	1	0
Tract	Field	568	20	Req'd Nutrients	241	0	130	0	0	0	0	0
Acres	App. Period	12.80	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	121	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	22.5 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	77 lbs/ac.	Medium	BALANCE	0	164	147	85	3	4	1	0
Tract	Field	568	20	Req'd Nutrients	79	0	70	0	0	0	0	1
Acres	App. Period	12.80	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	1
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.3 Tons	04-01-13	Manure	79	108	182	56	2	2	1	0
P Removal	Rating	39 lbs/ac.	Medium	BALANCE	0	108	112	56	2	2	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	21	Req'd Nutrients	*113	0	60	0	0	0	0	0
Acres	App. Period	12.60	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*11.0 Tons	04-01-13	Manure	113	154	261	80	3	4	1	0
P Removal	Rating	59 lbs/ac.	Medium	BALANCE	0	154	201	80	3	4	1	0
Tract	Field	568	21	Req'd Nutrients	286	0	110	0	0	0	0	0
Acres	App. Period	12.60	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	166	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	28.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	95 lbs/ac.	Medium	BALANCE	0	164	167	85	3	4	1	0
Tract	Field	568	22	Req'd Nutrients	*113	30	20	0	0	0	0	0
Acres	App. Period	5.47	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*11.0 Tons	02-06-12	Manure	113	154	261	80	3	4	1	0
P Removal	Rating	59 lbs/ac.	Low	BALANCE	0	124	241	80	3	4	1	0
Tract	Field	568	22	Req'd Nutrients	286	40	70	0	0	0	0	0
Acres	App. Period	5.47	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	166	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	28.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	95 lbs/ac.	Low	BALANCE	0	124	207	85	3	4	1	0
Tract	Field	568	23	Req'd Nutrients	81	30	20	0	0	0	0	0
Acres	App. Period	5.71	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	80	167	58	2	3	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	23	Req'd Nutrients	246	40	70	0	0	0	0	0
Acres	App. Period	5.71	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	124	207	85	3	4	1	0
Tract	Field	568	24	Req'd Nutrients	81	30	20	0	0	0	0	0
Acres	App. Period	1.99	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	80	167	58	2	3	1	0
Tract	Field	568	24	Req'd Nutrients	246	40	70	0	0	0	0	0
Acres	App. Period	1.99	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	124	207	85	3	4	1	0
Tract	Field	568	25	Req'd Nutrients	81	30	20	0	0	0	0	0
Acres	App. Period	10.80	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	80	167	58	2	3	1	0
Tract	Field	568	25	Req'd Nutrients	246	40	70	0	0	0	0	0
Acres	App. Period	10.80	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	124	207	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	26	Req'd Nutrients	79	60	50	0	0	0	0	0
Acres	App. Period	18.80	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.3 Tons	02-06-12	Manure	79	108	182	56	2	2	1	0
P Removal	Rating	39 lbs/ac.	Medium	BALANCE	0	48	132	56	2	2	1	0
Tract	Field	568	26	Req'd Nutrients	241	70	100	0	0	0	0	0
Acres	App. Period	18.80	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	121	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	22.5 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	77 lbs/ac.	Medium	BALANCE	0	94	177	85	3	4	1	0
Tract	Field	568	28	Req'd Nutrients	246	70	100	0	0	0	0	0
Acres	App. Period	13.40	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	94	177	85	3	4	1	0
Tract	Field	568	28	Req'd Nutrients	81	60	50	0	0	0	0	0
Acres	App. Period	13.40	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	50	137	58	2	3	1	0
Tract	Field	568	29	Req'd Nutrients	79	60	50	0	0	0	0	0
Acres	App. Period	19.20	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.3 Tons	02-06-12	Manure	79	108	182	56	2	2	1	0
P Removal	Rating	39 lbs/ac.	Medium	BALANCE	0	48	132	56	2	2	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	29	Req'd Nutrients	241	70	100	0	0	0	0	0
Acres	App. Period	19.20	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	121	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	22.5 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	77 lbs/ac.	Medium	BALANCE	0	94	177	85	3	4	1	0
Tract	Field	568	30	Req'd Nutrients	*113	60	50	0	0	0	0	0
Acres	App. Period	1.94	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*11.0 Tons	02-06-12	Manure	113	154	261	80	3	4	1	0
P Removal	Rating	59 lbs/ac.	Low	BALANCE	0	94	211	80	3	4	1	0
Tract	Field	568	30	Req'd Nutrients	286	70	100	0	0	0	0	0
Acres	App. Period	1.94	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	166	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	28.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	95 lbs/ac.	Low	BALANCE	0	94	177	85	3	4	1	0
Tract	Field	568	31	Req'd Nutrients	246	80	150	0	0	0	0	0
Acres	App. Period	35.50	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	84	127	85	3	4	1	0
Tract	Field	568	31	Req'd Nutrients	81	60	90	0	0	0	0	0
Acres	App. Period	35.50	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	50	97	58	2	3	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	32	Req'd Nutrients	81	60	90	0	0	0	0	0
Acres	App. Period	16.90	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	50	97	58	2	3	1	0
Tract	Field	568	32	Req'd Nutrients	246	80	150	0	0	0	0	0
Acres	App. Period	16.90	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	84	127	85	3	4	1	0
Tract	Field	568	33a	Req'd Nutrients	81	60	40	0	0	0	0	0
Acres	App. Period	28.00	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	50	147	58	2	3	1	0
Tract	Field	568	33a	Req'd Nutrients	246	70	100	0	0	0	0	0
Acres	App. Period	28.00	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	94	177	85	3	4	1	0
Tract	Field	568	33b	Req'd Nutrients	81	60	40	0	0	0	0	0
Acres	App. Period	28.00	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	02-06-12	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	50	147	58	2	3	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	33b	Req'd Nutrients	246	70	100	0	0	0	0	0
Acres	App. Period	28.00	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	94	177	85	3	4	1	0
Tract	Field	568	34a	Req'd Nutrients	133	40	30	0	0	0	0	0
Acres	App. Period	27.80	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	12.0 Tons	02-06-12	Manure	133	181	307	95	4	4	1	0
P Removal	Rating	65 lbs/ac.	Low	BALANCE	0	141	277	95	4	4	1	0
Tract	Field	568	34a	Req'd Nutrients	349	50	80	0	0	0	0	0
Acres	App. Period	27.80	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	229	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	32.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	109 lbs/ac.	Low	BALANCE	0	114	197	85	3	4	1	0
Tract	Field	568	34b	Req'd Nutrients	*113	40	30	0	0	0	0	0
Acres	App. Period	14.40	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*11.0 Tons	02-06-12	Manure	113	154	261	80	3	4	1	0
P Removal	Rating	59 lbs/ac.	Low	BALANCE	0	114	231	80	3	4	1	0
Tract	Field	568	34b	Req'd Nutrients	286	50	80	0	0	0	0	0
Acres	App. Period	14.40	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	166	0	0	0	0	0	0	0
Soil Series		Toxaway		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	28.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	95 lbs/ac.	Low	BALANCE	0	114	197	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	568	34c	Req'd Nutrients	79	40	30	0	0	0	0	0
Acres	App. Period	2.81	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.3 Tons	02-06-12	Manure	79	108	182	56	2	2	1	0
P Removal	Rating	39 lbs/ac.	Medium	BALANCE	0	68	152	56	2	2	1	0
Tract	Field	568	34c	Req'd Nutrients	241	50	80	0	0	0	0	0
Acres	App. Period	2.81	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	121	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	22.5 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	77 lbs/ac.	Medium	BALANCE	0	114	197	85	3	4	1	0
Tract	Field	568	34d	Req'd Nutrients	133	40	30	0	0	0	0	0
Acres	App. Period	21.80	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	12.0 Tons	02-06-12	Manure	133	181	307	95	4	4	1	0
P Removal	Rating	65 lbs/ac.	Low	BALANCE	0	141	277	95	4	4	1	0
Tract	Field	568	34d	Req'd Nutrients	349	50	80	0	0	0	0	0
Acres	App. Period	21.80	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	229	0	0	0	0	0	0	0
Soil Series		Rosman		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	32.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	109 lbs/ac.	Low	BALANCE	0	114	197	85	3	4	1	0
Tract	Field	849	05	Req'd Nutrients	125	60	50	0	0	0	0	0
Acres	App. Period	9.24	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Low	BALANCE	0	111	238	89	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	05	Req'd Nutrients	183	70	110	0	0	0	0	0
Acres	App. Period	9.24	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Low	BALANCE	0	94	167	85	3	4	1	0
Tract	Field	849	06 BR	Req'd Nutrients	81	60	50	0	0	0	0	0
Acres	App. Period	0.72	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	04-01-13	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	50	137	58	2	3	1	0
Tract	Field	849	06 P12	Req'd Nutrients	81	60	50	0	0	0	0	0
Acres	App. Period	5.48	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.5 Tons	04-01-13	Manure	81	110	187	58	2	3	1	0
P Removal	Rating	41 lbs/ac.	Medium	BALANCE	0	50	137	58	2	3	1	0
Tract	Field	849	06 P12	Req'd Nutrients	246	70	110	0	0	0	0	0
Acres	App. Period	5.48	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	126	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	23.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	78 lbs/ac.	Medium	BALANCE	0	94	167	85	3	4	1	0
Tract	Field	849	07a BR	Req'd Nutrients	125	60	50	0	0	0	0	0
Acres	App. Period	4.82	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	238	89	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	07a P10	Req'd Nutrients	125	60	50	0	0	0	0	0
Acres	App. Period	14.58	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	238	89	3	4	1	0
Tract	Field	849	07a P10	Req'd Nutrients	183	70	110	0	0	0	0	0
Acres	App. Period	14.58	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	94	167	85	3	4	1	0
Tract	Field	849	07b P11	Req'd Nutrients	249	0	50	0	0	0	0	0
Acres	App. Period	14.58	8/1-7/31	Supplied By:								
CROP		Fescue Hay		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	5.9 Tons	04-01-13	Manure	249	340	574	177	7	8	2	0
P Removal	Rating	93 lbs/ac.	Low	BALANCE	0	340	524	177	7	8	2	0
Tract	Field	849	09 BR	Req'd Nutrients	125	20	70	0	0	0	0	0
Acres	App. Period	3.88	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	151	218	89	3	4	1	0
Tract	Field	849	09 P8	Req'd Nutrients	125	20	70	0	0	0	0	0
Acres	App. Period	7.51	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	151	218	89	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	09 P8	Req'd Nutrients	183	40	130	0	0	0	0	0
Acres	App. Period	7.51	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	124	147	85	3	4	1	0
Tract	Field	849	09 P9	Req'd Nutrients	183	40	130	0	0	0	0	0
Acres	App. Period	11.31	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	124	147	85	3	4	1	0
Tract	Field	849	09 P9	Req'd Nutrients	125	20	70	0	0	0	0	0
Acres	App. Period	11.31	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	151	218	89	3	4	1	0
Tract	Field	849	10 BR	Req'd Nutrients	125	40	60	0	0	0	0	0
Acres	App. Period	3.82	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	131	228	89	3	4	1	0
Tract	Field	849	10 BR	Req'd Nutrients	183	50	110	0	0	0	0	0
Acres	App. Period	3.82	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	114	167	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	10 P7	Req'd Nutrients	183	50	110	0	0	0	0	0
Acres	App. Period	9.78	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	114	167	85	3	4	1	0
Tract	Field	849	10 P7	Req'd Nutrients	125	40	60	0	0	0	0	0
Acres	App. Period	9.78	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	131	228	89	3	4	1	0
Tract	Field	849	11 BR	Req'd Nutrients	125	60	100	0	0	0	0	0
Acres	App. Period	6.19	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	188	89	3	4	1	0
Tract	Field	849	11 P1	Req'd Nutrients	125	60	100	0	0	0	0	0
Acres	App. Period	10.18	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	188	89	3	4	1	0
Tract	Field	849	11 P1	Req'd Nutrients	183	70	170	0	0	0	0	0
Acres	App. Period	10.18	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	94	107	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	11 P2	Req'd Nutrients	125	60	100	0	0	0	0	0
Acres	App. Period	12.40	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	188	89	3	4	1	0
Tract	Field	849	11 P2	Req'd Nutrients	183	70	170	0	0	0	0	0
Acres	App. Period	12.40	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	94	107	85	3	4	1	0
Tract	Field	849	11 P3	Req'd Nutrients	125	60	100	0	0	0	0	0
Acres	App. Period	13.31	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	188	89	3	4	1	0
Tract	Field	849	11 P3	Req'd Nutrients	183	70	170	0	0	0	0	0
Acres	App. Period	13.31	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	94	107	85	3	4	1	0
Tract	Field	849	11 P4	Req'd Nutrients	183	70	170	0	0	0	0	0
Acres	App. Period	12.81	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	94	107	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	11 P4	Req'd Nutrients	125	60	100	0	0	0	0	0
Acres	App. Period	12.81	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	188	89	3	4	1	0
Tract	Field	849	11 P5	Req'd Nutrients	125	60	100	0	0	0	0	0
Acres	App. Period	12.40	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	188	89	3	4	1	0
Tract	Field	849	11 P5	Req'd Nutrients	183	70	170	0	0	0	0	0
Acres	App. Period	12.40	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	94	107	85	3	4	1	0
Tract	Field	849	11 P6	Req'd Nutrients	125	60	100	0	0	0	0	0
Acres	App. Period	13.31	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	11.8 Tons	04-01-13	Manure	125	171	288	89	3	4	1	0
P Removal	Rating	64 lbs/ac.	Medium	BALANCE	0	111	188	89	3	4	1	0
Tract	Field	849	11 P6	Req'd Nutrients	183	70	170	0	0	0	0	0
Acres	App. Period	13.31	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	63	0	0	0	0	0	0	0
Soil Series		Bradson		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	17.6 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	60 lbs/ac.	Medium	BALANCE	0	94	107	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	12 P13	Req'd Nutrients	95	0	70	0	0	0	0	0
Acres	App. Period	9.57	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	9.0 Tons	04-01-13	Manure	95	130	219	68	3	3	1	0
P Removal	Rating	49 lbs/ac.	Low	BALANCE	0	130	149	68	3	3	1	0
Tract	Field	849	12 P14	Req'd Nutrients	250	10	130	0	0	0	0	0
Acres	App. Period	9.42	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	130	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	24.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	82 lbs/ac.	Low	BALANCE	0	154	147	85	3	4	1	0
Tract	Field	849	12 P14	Req'd Nutrients	95	0	70	0	0	0	0	0
Acres	App. Period	9.42	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	9.0 Tons	04-01-13	Manure	95	130	219	68	3	3	1	0
P Removal	Rating	49 lbs/ac.	Low	BALANCE	0	130	149	68	3	3	1	0
Tract	Field	849	12 P15	Req'd Nutrients	95	0	70	0	0	0	0	0
Acres	App. Period	5.01	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	9.0 Tons	04-01-13	Manure	95	130	219	68	3	3	1	0
P Removal	Rating	49 lbs/ac.	Low	BALANCE	0	130	149	68	3	3	1	0
Tract	Field	849	12 P15	Req'd Nutrients	250	10	130	0	0	0	0	0
Acres	App. Period	5.01	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	130	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	24.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	82 lbs/ac.	Low	BALANCE	0	154	147	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	12 P16	Req'd Nutrients	95	0	70	0	0	0	0	0
Acres	App. Period	7.51	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	9.0 Tons	04-01-13	Manure	95	130	219	68	3	3	1	0
P Removal	Rating	49 lbs/ac.	Low	BALANCE	0	130	149	68	3	3	1	0
Tract	Field	849	12 P16	Req'd Nutrients	250	10	130	0	0	0	0	0
Acres	App. Period	7.51	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	130	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	24.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	82 lbs/ac.	Low	BALANCE	0	154	147	85	3	4	1	0
Tract	Field	849	12 P17	Req'd Nutrients	95	0	70	0	0	0	0	0
Acres	App. Period	5.14	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	9.0 Tons	04-01-13	Manure	95	130	219	68	3	3	1	0
P Removal	Rating	49 lbs/ac.	Low	BALANCE	0	130	149	68	3	3	1	0
Tract	Field	849	12 P17	Req'd Nutrients	250	10	130	0	0	0	0	0
Acres	App. Period	5.14	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	130	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	24.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	82 lbs/ac.	Low	BALANCE	0	154	147	85	3	4	1	0
Tract	Field	849	12 P18	Req'd Nutrients	95	0	70	0	0	0	0	0
Acres	App. Period	9.57	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	9.0 Tons	04-01-13	Manure	95	130	219	68	3	3	1	0
P Removal	Rating	49 lbs/ac.	Low	BALANCE	0	130	149	68	3	3	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	849	12 P18	Req'd Nutrients	250	10	130	0	0	0	0	0
Acres	App. Period	9.57	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	130	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	24.0 Tons	04-01-13	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	82 lbs/ac.	Low	BALANCE	0	154	147	85	3	4	1	0
Tract	Field	967	01a	Req'd Nutrients	95	10	10	0	0	0	0	0
Acres	App. Period	30.51	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	9.0 Tons	02-06-12	Manure	95	130	219	68	3	3	1	0
P Removal	Rating	49 lbs/ac.	Low	BALANCE	0	120	209	68	3	3	1	0
Tract	Field	967	01a	Req'd Nutrients	250	30	50	0	0	0	0	0
Acres	App. Period	30.51	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	130	0	0	0	0	0	0	0
Soil Series		Colvard		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	24.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	82 lbs/ac.	Low	BALANCE	0	134	227	85	3	4	1	0
Tract	Field	967	01b	Req'd Nutrients	79	10	10	0	0	0	0	0
Acres	App. Period	12.49	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.3 Tons	02-06-12	Manure	79	108	182	56	2	2	1	0
P Removal	Rating	39 lbs/ac.	Medium	BALANCE	0	98	172	56	2	2	1	0
Tract	Field	967	01b	Req'd Nutrients	241	30	50	0	0	0	0	0
Acres	App. Period	12.49	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	121	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	22.5 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	77 lbs/ac.	Medium	BALANCE	0	134	227	85	3	4	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	967	02	Req'd Nutrients	79	10	10	0	0	0	0	0
Acres	App. Period	12.90	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	7.3 Tons	02-06-12	Manure	79	108	182	56	2	2	1	0
P Removal	Rating	39 lbs/ac.	Medium	BALANCE	0	98	172	56	2	2	1	0
Tract	Field	967	02	Req'd Nutrients	241	30	50	0	0	0	0	0
Acres	App. Period	12.90	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	121	0	0	0	0	0	0	0
Soil Series		Delanco		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	22.5 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	77 lbs/ac.	Medium	BALANCE	0	134	227	85	3	4	1	0
Tract	Field	967	03	Req'd Nutrients	*85	10	10	0	0	0	0	0
Acres	App. Period	4.62	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Codorus		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*8.0 Tons	02-06-12	Manure	85	116	196	61	2	3	1	0
P Removal	Rating	43 lbs/ac.	Medium	BALANCE	0	106	186	61	2	3	1	0
Tract	Field	967	03	Req'd Nutrients	270	30	50	0	0	0	0	0
Acres	App. Period	4.62	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	150	0	0	0	0	0	0	0
Soil Series		Codorus		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	26.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	88 lbs/ac.	Medium	BALANCE	0	134	227	85	3	4	1	0
Tract	Field	968	01	Req'd Nutrients	*85	10	10	0	0	0	0	0
Acres	App. Period	26.40	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Codorus		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*8.0 Tons	02-06-12	Manure	85	116	196	61	2	3	1	0
P Removal	Rating	43 lbs/ac.	Medium	BALANCE	0	106	186	61	2	3	1	0

Nutrient Management Recommendations Test

YEAR		1			N (lbs/A)	P2O5 (lbs/A)	K2O (lbs/A)	Mg (lbs/A)	Mn (lbs/A)	Zn (lbs/A)	Cu (lbs/A)	Lime (tons/A)
Tract	Field	968	01	Req'd Nutrients	270	30	50	0	0	0	0	0
Acres	App. Period	26.40	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	150	0	0	0	0	0	0	0
Soil Series		Codorus		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	26.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	88 lbs/ac.	Medium	BALANCE	0	134	227	85	3	4	1	0
Tract	Field	968	02	Req'd Nutrients	*85	10	10	0	0	0	0	0
Acres	App. Period	16.40	9/1-3/31	Supplied By:								
CROP		Small Grain, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	0	0	0	0	0	0	0	0
Soil Series		Codorus		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	*8.0 Tons	02-06-12	Manure	85	116	196	61	2	3	1	0
P Removal	Rating	43 lbs/ac.	Medium	BALANCE	0	106	186	61	2	3	1	0
Tract	Field	968	02	Req'd Nutrients	270	30	50	0	0	0	0	0
Acres	App. Period	16.40	2/15-6/30	Supplied By:								
CROP		Corn, Silage		Starter	0	0	0	0	0	0	0	0
				Commercial Fert.	150	0	0	0	0	0	0	0
Soil Series		Codorus		Residual	0	0	0	0	0	0	0	0
RYE	Sample Date	26.0 Tons	02-06-12	Manure	120	164	277	85	3	4	1	0
P Removal	Rating	88 lbs/ac.	Medium	BALANCE	0	134	227	85	3	4	1	0

NOTE: Symbol * means user entered data.

The Required Soil Test Values shown in the following table provide a summary of recommended actions that should be taken if soil tests indicate excessive levels of copper or zinc. Fields that receive manure must have an annual soil analysis for these elements. High levels of zinc and copper can adversely affect plant growth. Alternative crop sites must be used when the concentration of these metals approach excessive levels. Site life can be estimated by dividing the amount of copper and zinc to be applied in lbs/acre by 0.036 and 0.071, respectively and multiplying the result by 0.85. By adding this quantity to the current soil index for copper or zinc, we can predict life of the site for waste disposal.

In addition to copper and zinc indices, this table also provides a summary of lime recommendations for each crop based on the most recent soil sample. Application of lime at recommended rates is necessary to maintain soil pH in the optimum range for crop production.

Required Soil Test Values

Tract	Field	Crop	pH	Lime Recom. (tons/acre)	Cu-I	Copper Recommendation	Zn-I	Zinc Recommendation
568	13	Small Grain, Silage	7.2	0.0	125	None	90	None
568	13	Corn, Silage	7.2	0.0	125	None	90	None
568	14	Small Grain, Silage	7.2	0.0	125	None	90	None
568	14	Corn, Silage	7.2	0.0	125	None	90	None
568	15	Small Grain, Silage	6.7	0.0	47	None	68	None
568	15	Corn, Silage	6.7	0.0	47	None	68	None
568	17	Small Grain, Silage	5.7	0.4	48	None	69	None
568	17	Corn, Silage	5.7	0.0	48	None	69	None
568	18	Small Grain, Silage	5.4	0.4	44	None	59	None
568	18	Corn, Silage	5.4	0.0	44	None	59	None
568	19	Small Grain, Silage	5.1	1.0	35	None	53	None
568	19	Corn, Silage	5.1	0.0	35	None	53	None
568	20	Small Grain, Silage	5.1	1.0	35	None	53	None
568	20	Corn, Silage	5.1	0.0	35	None	53	None
568	21	Small Grain, Silage	5.9	0.0	60	None	72	None
568	21	Corn, Silage	5.9	0.0	60	None	72	None
568	22	Small Grain, Silage	7.0	0.0	141	None	130	None
568	22	Corn, Silage	7.0	0.0	141	None	130	None
568	23	Small Grain, Silage	7.0	0.0	141	None	130	None
568	23	Corn, Silage	7.0	0.0	141	None	130	None
568	24	Small Grain, Silage	7.0	0.0	141	None	130	None
568	24	Corn, Silage	7.0	0.0	141	None	130	None

Required Soil Test Values

Tract	Field	Crop	pH	Lime Recom. (tons/acre)	Cu-I	Copper Recommendation	Zn-I	Zinc Recommendation
568	25	Small Grain, Silage	7.0	0.0	141	None	130	None
568	25	Corn, Silage	7.0	0.0	141	None	130	None
568	26	Small Grain, Silage	6.4	0.0	75	None	47	None
568	26	Corn, Silage	6.4	0.0	75	None	47	None
568	28	Small Grain, Silage	6.4	0.0	75	None	47	None
568	28	Corn, Silage	6.4	0.0	75	None	47	None
568	29	Small Grain, Silage	6.4	0.0	75	None	47	None
568	29	Corn, Silage	6.4	0.0	75	None	47	None
568	30	Small Grain, Silage	6.4	0.0	75	None	47	None
568	30	Corn, Silage	6.4	0.0	75	None	47	None
568	31	Small Grain, Silage	6.6	0.0	92	None	56	None
568	31	Corn, Silage	6.6	0.0	92	None	56	None
568	32	Small Grain, Silage	6.6	0.0	92	None	56	None
568	32	Corn, Silage	6.6	0.0	92	None	56	None
568	33a	Small Grain, Silage	6.3	0.0	82	None	74	None
568	33a	Corn, Silage	6.3	0.0	82	None	74	None
568	33b	Small Grain, Silage	6.3	0.0	82	None	74	None
568	33b	Corn, Silage	6.3	0.0	82	None	74	None
568	34a	Small Grain, Silage	6.4	0.0	63	None	73	None
568	34a	Corn, Silage	6.4	0.0	63	None	73	None
568	34b	Small Grain, Silage	6.4	0.0	63	None	73	None
568	34b	Corn, Silage	6.4	0.0	63	None	73	None
568	34c	Small Grain, Silage	6.4	0.0	63	None	73	None
568	34c	Corn, Silage	6.4	0.0	63	None	73	None
568	34d	Small Grain, Silage	6.4	0.0	63	None	73	None
568	34d	Corn, Silage	6.4	0.0	63	None	73	None
849	05	Small Grain, Silage	5.8	0.3	71	None	102	None
849	05	Corn, Silage	5.8	0.0	71	None	102	None
849	06 BR	Small Grain, Silage	5.8	0.3	71	None	102	None
849	06 P12	Small Grain, Silage	5.8	0.3	71	None	102	None

Required Soil Test Values

Tract	Field	Crop	pH	Lime Recom. (tons/acre)	Cu-I	Copper Recommendation	Zn-I	Zinc Recommendation
849	06 P12	Corn, Silage	5.8	0.0	71	None	102	None
849	07a BR	Small Grain, Silage	5.8	0.3	71	None	102	None
849	07a P10	Small Grain, Silage	5.8	0.3	71	None	102	None
849	07a P10	Corn, Silage	5.8	0.0	71	None	102	None
849	07b P11	Fescue Hay	5.8	0.3	71	None	102	None
849	09 BR	Small Grain, Silage	6.0	0.0	63	None	66	None
849	09 P8	Small Grain, Silage	6.0	0.0	63	None	66	None
849	09 P8	Corn, Silage	6.0	0.0	63	None	66	None
849	09 P9	Small Grain, Silage	6.0	0.0	63	None	66	None
849	09 P9	Corn, Silage	6.0	0.0	63	None	66	None
849	10 BR	Small Grain, Silage	5.9	0.0	41	None	66	None
849	10 BR	Corn, Silage	5.9	0.0	41	None	66	None
849	10 P7	Small Grain, Silage	5.9	0.0	41	None	66	None
849	10 P7	Corn, Silage	5.9	0.0	41	None	66	None
849	11 BR	Small Grain, Silage	5.9	0.0	62	None	64	None
849	11 P1	Small Grain, Silage	5.9	0.0	62	None	64	None
849	11 P1	Corn, Silage	5.9	0.0	62	None	64	None
849	11 P2	Small Grain, Silage	5.9	0.0	62	None	64	None
849	11 P2	Corn, Silage	5.9	0.0	62	None	64	None
849	11 P3	Small Grain, Silage	5.9	0.0	62	None	64	None
849	11 P3	Corn, Silage	5.9	0.0	62	None	64	None
849	11 P4	Small Grain, Silage	5.9	0.0	62	None	64	None
849	11 P4	Corn, Silage	5.9	0.0	62	None	64	None
849	11 P5	Small Grain, Silage	5.9	0.0	62	None	64	None
849	11 P5	Corn, Silage	5.9	0.0	62	None	64	None
849	11 P6	Small Grain, Silage	5.9	0.0	62	None	64	None
849	11 P6	Corn, Silage	5.9	0.0	62	None	64	None
849	12 P13	Small Grain, Silage	5.7	0.0	52	None	65	None
849	12 P14	Small Grain, Silage	5.7	0.0	52	None	65	None
849	12 P14	Corn, Silage	5.7	0.0	52	None	65	None

Required Soil Test Values

Tract	Field	Crop	pH	Lime Recom. (tons/acre)	Cu-I	Copper Recommendation	Zn-I	Zinc Recommendation
849	12 P15	Small Grain, Silage	5.7	0.0	52	None	65	None
849	12 P15	Corn, Silage	5.7	0.0	52	None	65	None
849	12 P16	Small Grain, Silage	5.7	0.0	52	None	65	None
849	12 P16	Corn, Silage	5.7	0.0	52	None	65	None
849	12 P17	Small Grain, Silage	5.7	0.0	52	None	65	None
849	12 P17	Corn, Silage	5.7	0.0	52	None	65	None
849	12 P18	Small Grain, Silage	5.7	0.0	52	None	65	None
849	12 P18	Corn, Silage	5.7	0.0	52	None	65	None
967	01a	Small Grain, Silage	7.2	0.0	125	None	90	None
967	01a	Corn, Silage	7.2	0.0	125	None	90	None
967	01b	Small Grain, Silage	7.2	0.0	125	None	90	None
967	01b	Corn, Silage	7.2	0.0	125	None	90	None
967	02	Small Grain, Silage	7.2	0.0	125	None	90	None
967	02	Corn, Silage	7.2	0.0	125	None	90	None
967	03	Small Grain, Silage	7.2	0.0	125	None	90	None
967	03	Corn, Silage	7.2	0.0	125	None	90	None
968	01	Small Grain, Silage	7.2	0.0	125	None	90	None
968	01	Corn, Silage	7.2	0.0	125	None	90	None
968	02	Small Grain, Silage	7.2	0.0	125	None	90	None
968	02	Corn, Silage	7.2	0.0	125	None	90	None

The Available Waste Storage Capacity table provides an estimate of the number of days of storage capacity available at the end of each month of the plan. Available storage capacity is calculated as the design storage capacity in days minus the number of days of net storage volume accumulated. The start date is a value entered by the user and is defined as the date prior to applying nutrients to the first crop in the plan at which storage volume in the lagoon or holding pond is equal to zero.

Available storage capacity should be greater than or equal to zero and less than or equal to the design storage capacity of the facility. If the available storage capacity is greater than the design storage capacity, this indicates that the plan calls for the application of nutrients that have not yet accumulated. If available storage capacity is negative, the estimated volume of accumulated waste exceeds the design storage volume of the structure. Either of these situations indicates that the planned application interval in the waste utilization plan is inconsistent with the structure's temporary storage capacity.

Available Waste Storage Capacity

Source Name	Dairy (Milk Cow) Liquid Manure Slurry		Design Storage Capacity (Days)
Start Date	10/1		90
Plan Year	Month	Available Storage Capacity (Days) *	
1	1	2	
1	2	90	
1	3	90	
1	4	90	
1	5	90	
1	6	60	
1	7	35	
1	8	4	
1	9	38	
1	10	90	
1	11	90	
1	12	86	

* Available Storage Capacity is calculated as of the end of each month.

Required Specifications For Animal Waste Management

- 1. Animal waste shall not reach surface waters of the state by runoff, drift, manmade conveyances, direct application, or direct discharge during operation or land application. Any discharge of waste that reaches surface water is prohibited.**
- 2. There must be documentation in the design folder that the producer either owns or has an agreement for use of adequate land on which to properly apply the waste. If the producer does not own adequate land to properly dispose of the waste, he/she shall provide evidence of an agreement with a landowner, who is within a reasonable proximity, allowing him/her the use of the land for waste application. It is the responsibility of the owner of the waste production facility to secure an update of the Nutrient Management Plan when there is a change in the operation, increase in the number of animals, method of application, receiving crop type, or available land.**
- 3. Animal waste shall be applied to meet, but not exceed, the nitrogen needs for realistic crop yields based upon soil type, available moisture, historical data, climatic conditions, and level of management, unless there are regulations that restrict the rate of applications for other nutrients.**
- 4. Animal waste shall be applied to land eroding less than 5 tons per acre per year. Waste may be applied to land eroding at more than 5 tons per acre per year but less than 10 tons per acre per year provided grass filter strips are installed where runoff leaves the field (see USDA, NRCS Field Office Technical Guide Standard 393 - Filter Strips).**
- 5. Odors can be reduced by injecting the waste or by disking after waste application. Waste should not be applied when there is danger of drift from the land application field.**
- 6. When animal waste is to be applied on acres subject to flooding, waste will be soil incorporated on conventionally tilled cropland. When waste is applied to conservation tilled crops or grassland, the waste may be broadcast provided the application does not occur during a season prone to flooding (see "Weather and Climate in North Carolina" for guidance).**

7. **Liquid waste shall be applied at rates not to exceed the soil infiltration rate such that runoff does not occur offsite or to surface waters and in a method which does not cause drift from the site during application. No ponding should occur in order to control odor and flies.**
8. **Animal waste shall not be applied to saturated soils, during rainfall events, or when the soil surface is frozen.**
9. **Animal waste shall be applied on actively growing crops in such a manner that the crop is not covered with waste to a depth that would inhibit growth. The potential for salt damage from animal waste should also be considered.**
10. **Nutrients from waste shall not be applied in fall or winter for spring planted crops on soils with a high potential for leaching. Waste/nutrient loading rates on these soils should be held to a minimum and a suitable winter cover crop planted to take up released nutrients. Waste shall not be applied more than 30 days prior to planting of the crop or forages breaking dormancy.**
11. **Any new swine facility sited on or after October 1, 1995 shall comply with the following: The outer perimeter of the land area onto which waste is applied from a lagoon that is a component of a swine farm shall be at least 50 feet from any residential property boundary and canal. Animal waste, other than swine waste from facilities sited on or after October 1, 1995, shall not be applied closer than 25 feet to perennial waters.**
12. **Animal waste shall not be applied closer than 100 feet to wells.**
13. **Animal waste shall not be applied closer than 200 feet of dwellings other than those owned by the landowner.**
14. **Waste shall be applied in a manner not to reach other property and public right-of-ways.**

15. Animal waste shall not be discharged into surface waters, drainageways, or wetlands by a discharge or by over-spraying. Animal waste may be applied to prior converted cropland provided the fields have been approved as a land application site by a "technical specialist". Animal waste shall not be applied on grassed waterways that discharge directly into water courses, and on other grassed waterways, waste shall be applied at agronomic rates in a manner that causes no runoff or drift from the site.
16. Domestic and industrial waste from washdown facilities, showers, toilets, sinks, etc., shall not be discharged into the animal waste management system.
17. A protective cover of appropriate vegetation will be established on all disturbed areas (lagoon embankments, berms, pipe runs, etc.). Areas shall be fenced, as necessary, to protect the vegetation. Vegetation such as trees, shrubs, and other woody species, etc., are limited to areas where considered appropriate. Lagoon areas should be kept mowed and accessible. Berms and structures should be inspected regularly for evidence of erosion, leakage, or discharge.
18. If animal production at the facility is to be suspended or terminated, the owner is responsible for obtaining and implementing a "closure plan" which will eliminate the possibility of an illegal discharge, pollution, and erosion.
19. Waste handling structures, piping, pumps, reels, etc., should be inspected on a regular basis to prevent breakdowns, leaks, and spills. A regular maintenance checklist should be kept on site.
20. Animal waste can be used in a rotation that includes vegetables and other crops for direct human consumption. However, if animal waste is used on crops for direct human consumption, it should only be applied pre-plant with no further applications of animal waste during the crop season.
21. Highly visible markers shall be installed to mark the top and bottom elevations of the temporary storage (pumping volume) of all waste treatment lagoons. Pumping shall be managed to maintain the liquid level between the markers. A marker will be required to mark the maximum storage volume for waste storage ponds.

- 22. Waste shall be tested within 60 days of utilization and soil shall be tested at least annually at crop sites where waste products are applied. Nitrogen shall be the rate-determining nutrient, unless other restrictions require waste to be applied based on other nutrients, resulting in a lower application rate than a nitrogen based rate. Zinc and copper levels in the soils shall be monitored and alternative crop sites shall be used when these metals approach excessive levels. pH shall be adjusted and maintained for optimum crop production. Soil and waste analysis records shall be kept for a minimum of five years. Poultry dry waste application records shall be maintained for a minimum of three years. Waste application records for all other waste shall be maintained for five (5) years.**
- 23. Dead animals will be disposed of in a manner that meets North Carolina regulations.**

NUTRIENT MANAGEMENT and WASTE UTILIZATION PLAN SUPPLEMENTAL INFORMATION

N.C. Practice Job Sheet: NC-590-633

Prepared for: Taproot Dairy, LLC

By: Joe Helyndor

Farm: _____ Tract: _____ Date: 9/9/2014

WHAT IS NUTRIENT MANAGEMENT?

The conservation practice, Nutrient Management, is managing the amount, source, placement, form and timing of the application of nutrients and soil amendments to achieve realistic production goals, while minimizing nutrient movement to surface or ground waters. The practice, Waste Utilization, is using agricultural waste such as manure or wastewater in an environmentally sound manner. These practices are jointly accomplished through the development of a Nutrient Management/Waste Utilization Plan, which is normally part of a broader Conservation Plan that addresses multiple natural resource concerns on the land.

PURPOSE OF NUTRIENT MANAGEMENT and WASTE UTILIZATION PRACTICES

Your nutrient management/waste utilization plan is intended to accomplish one or more of the following objectives:

- To budget nutrients for plant production.
- To properly utilize manure or organic by-products as a plant nutrient source.
- To minimize the delivery of agricultural nutrients to surface and ground water resources.
- To maintain or improve the physical, chemical, and biological condition of the soil.

- To utilize agricultural wastes for livestock feed or as an energy source.

CONTENTS OF THE NUTRIENT MANAGEMENT / WASTE UTILIZATION PLAN

The information provided in this Job Sheet and the attachments meet the minimum requirements for a Nutrient Management Plan for USDA-NRCS purposes. This Nutrient Management Plan includes:

1. A plan map and soils map for the area planned (these may be part of the overall Conservation Plan).
2. Location of designated sensitive areas or resources (streams, wells, sinkholes, etc.) and any associated nutrient application setbacks, etc.
3. Your planned crop rotation.
4. Results of soil, plant, water tests.
5. Results from Phosphorus Loss Assessment Tool (PLAT) or Leaching Index (LI) as required.
6. Realistic yield expectations for the crops in the rotation, and their source if other than default values approved for N.C.
7. Recommended nutrient application rates for nitrogen, phosphorus, and potassium, as well as timing, form,

and method of application and incorporation, if applicable.

8. This Job Sheet (or comparable information), that provides the following:
- General requirements of this practice, as well as additional requirements to meet the natural resource protection purposes listed above.
 - Additional considerations specific to this plan.
 - Operation and maintenance information associated with this practice.

Because this Nutrient Management Plan includes agricultural organic sources, additional items are required in the plan to ensure proper waste utilization:

- Waste Utilization Agreement (if applicable)
- Waste Utilization Third Party Agreement (if applicable)
- Additional engineering design and operating information for waste storage structures, transport, and application system, as applicable. These designs, and the instructions for operating these structures, is an integral component of your overall Nutrient Management/Waste Utilization Plan.
- Emergency Action Plan to prevent overtopping or other discharges from storage structures or facilities, as applicable.

This plan was developed based on the current NRCS 590 and 633 standards and Federal, state, or local regulations or policies. Changes in laws or regulations may necessitate a revision of the plan.

BASIC REQUIREMENTS FOR WASTE UTILIZATION

General

All manure and organic residues must be applied according to a nutrient management plan (see the following section, "BASIC

REQUIREMENTS FOR NUTRIENT MANAGEMENT")

You are required to acquire and comply with all federal, state, or local permit requirements related to the handling and application of manure or organic materials.

The nutrient management/waste utilization plan must address all organic waste generated at or brought to the facility. A Waste Utilization Third Party Agreement must exist to address all organic waste not handled by the nutrient management/waste utilization plan.

Manure or organic wastes will not be applied to the following areas:

- surface waters,
- wetlands, unless constructed as a component in a waste treatment system,
- soils subject to frequent flooding during the period when flooding is expected,
- frozen, snow-covered, or saturated soils,
- within 200 feet of a dwelling other than those owned by the producer,
- within 100 feet of a well,
- within 25 feet of surface waters, or
- within any other setbacks as identified by federal, state, or local laws or regulations (e.g. NC General Statute prevents swine lagoon effluent from being applied within 75 feet of a residential property boundary or perennial stream or river if the facility was sited on or after October 1995.)

Manure or organic wastes will be applied in a manner not to reach surface waters, wetlands (unless constructed as a component in a waste treatment system), property owned by others, or public right-of-way.

Sludge that accumulates in waste storage structures must be analyzed prior to land

application. Adequate provisions (available land and/or third party manure agreements) must exist to ensure sludge is applied in adherence to all nutrient application requirements. All federal and state guidance regarding the proper testing, handling, planning, and application of sludge must be followed for regulated operations.

Since compliance with all applicable North Carolina laws is the responsibility of the producer, you should consult the most current version of the Guidance Memo for Implementing the Environmental Management Commission's Regulations for Animal Waste Management for questions.

ADDITIONAL REQUIREMENTS FOR PROVIDING LIVESTOCK FEED

If applicable, all agricultural wastes or other organic residues used for feedstock must be handled in a manner to minimize contamination and preserve its feed value. Chicken litter stored for this purpose must be covered. A qualified animal nutritionist shall develop rations that utilize animal wastes.

ADDITIONAL REQUIREMENTS FOR PROVIDING A SOURCE OF ENERGY

If your facility is to be used for energy production, all energy producing components of the system are included in the Nutrient Management/Waste Utilization Plan and provisions for the utilization of residues of energy production identified. Your Nutrient Management Plan includes the use of these residues, if applicable.

BASIC REQUIREMENTS FOR NUTRIENT MANAGEMENT

General

Application of nutrients must comply with all applicable Federal, state, and local laws and regulations.

The realistic yield expectations (RYEs) in this plan are based on one or more of the following:

- Default values approved by the N.C. Interagency Nutrient Management Committee that incorporate soil productivity information, yield data, and research with North Carolina soils, and cropping systems. Additional information on the default values may be found at:

www.soil.ncsu.edu/nmp/ncnmwg/index.htm

- Documented actual yield data from the site, determined by the average of the highest three yields of the last five consecutive specific crop harvests. (For forage crops, determine the average of the highest three years of the last five years.)
- A fertilization rate recommended by North Carolina State University may be used in cases where no yield data or approved RYE values exist for a crop.
- An RYE inferred from a similar crop on a soil with similar physical and chemical features may be used for new crops or in the absence of other RYE data. This inferred RYE may ONLY be specified by a certified Nutrient Management planner.

Erosion, runoff, and water management controls have been planned, as needed, on fields that receive nutrients.

Soil Testing

This nutrient management plan has been developed based on current soil test results (no older than three years).

Soil samples must be collected and prepared in accordance with North Carolina State University or the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) Agronomic Division standards or recommendations.

Soil test analyses can be performed by any laboratory or program that is certified by the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality, Laboratory Section.

NCD&CS Agronomic Division uses the Mehlich-3 extractant process for soil testing. Growers who utilize other laboratories must request the use of the Mehlich-3 methodology to ensure the test results are compatible with North Carolina's nutrient management planning and assessment tools. For statewide consistency, all laboratories used must provide fertilization recommendations using guidelines and methodologies as referenced at the NCD&CS website:

www.ncagr.com/agronomi/obook.htm

Growers are encouraged to use a laboratory that is supported by field research within the state.

Soil testing shall include analysis for all nutrients for which specific information is needed to develop the nutrient plan.

Plant Tissue Testing

Tissue sampling and testing, when used, shall be done in accordance with North Carolina State University or NCD&CS standards or recommendations.

Manure Testing

Nutrient values of manure and organic by-products shall be established for planning purposes based on laboratory analysis, acceptable default values, or historic records for the operation.

When determining actual application rates, a laboratory analysis is required. State regulations require that waste be tested within 60 days of utilization for some operations. In the case of daily spreading, the waste must be sampled and analyzed at least once a year. Acceptable laboratories include the

NCD&CS Agronomic Division, or others certified by the NCDENR.

Field Risk Assessment

A field-specific assessment of the potential for phosphorus transport from each field (or groups of similar fields) have been conducted, using the North Carolina Phosphorus Loss Assessment Tool (PLAT)

PLAT assesses the potential for phosphorus (P) to be transported from the site to surface water through each of the four primary loss pathways:

- sediment-bound P transported through erosion,
- soluble P transported through surface runoff,
- soluble P leached through the soil profile, and
- non-incorporated source P transported through surface runoff.

Based on the assessment of each loss pathway, PLAT produces a single rating for each field. As shown below, this rating will identify whether nitrogen or phosphorus shall be the rate-determining element in developing the planned application rate for manure.

PLAT Rating	Nutrient Application Criteria
LOW	Nitrogen-based manure application.
MEDIUM	Nitrogen-based manure application.
HIGH	Manure application limited to phosphorus removal from site in harvested plant biomass.
VERY HIGH	No additional manure application to be specified in plan for the site.

On all sites, regardless of the PLAT rating, starter fertilizers may be recommended in accordance with NCSU guidelines or recommendations.

In some cases, specific conservation practices that reduce the potential for phosphorus transport have been incorporated into PLAT. Examples include buffers or filter strips, ponds, water table management, and residue management and conservation tillage. Similarly, soil erosion rates, either existing or planned, have been incorporated into your PLAT analysis. This information is shown on the PLAT results enclosed. Because the management of the site actually affects the PLAT rating, all practices identified on the PLAT analysis (including any required to achieve the specified erosion rate) must be either already installed or included in a Conservation Plan for the Nutrient Management Plan to be approved.

Nutrient Application Rates

Recommended nutrient application rates are based on North Carolina State University or NCDA&CS recommendations that consider current soil test results, RYEs, and management.

Liming material shall be applied as needed to adjust soil pH to the specific range required by the crop or crops in the rotation for optimum availability and utilization of nutrients.

The application amount and rate (in/hr) for liquid wastes (e.g. applied through irrigation) shall not result in runoff from the site. The application shall not exceed the field capacity of the soil.

The planned rates of nutrient application are shown on the attached sheets. These rates have been computed as follows:

- **Nitrogen Application** - When the plan is nitrogen-based (a PLAT rating of Low or Medium), the application rate of manure or organic by-products shall be based on the recommended nitrogen rate using the RYE for the site (or a rate recommended by NCSU or NCDA in the case of crops without established RYEs). This may result in an application rate for other

nutrients that exceeds the soil test recommendation.

- When the plan is being implemented on a phosphorus standard (a PLAT rating of High or Very High), manure or other organic by-products shall be applied at rates consistent with the phosphorus application guidance below. In such situations, an additional nitrogen application from non-organic sources may be required to supply nitrogen at the rate recommended by the RYE.
- Within the limits allowed by PLAT, manure or other organic by-products may be applied on soybeans at rates equal to the estimated removal of nitrogen in harvested plant biomass.
- All nitrogen rates for hay production are for pure grass stands. Due to the nutrient recycling by grazing animals, the planned nitrogen rate per unit yield for hay crops shall be reduced by 25% for the portion of the expected yield that is removed through grazing.
- **Phosphorus Application** – When manure or other organic by-products are used, the planned rates of phosphorus application shall be based on the PLAT rating for the site, as follows:

Low or Medium Rating – The planned manure or organic by-product application rate is based on the nitrogen needs of the crop.

High Rating – The planned manure or organic by-product application rate is limited to the phosphorus removal rate of the harvested plant biomass.

Very High Rating – No additional manure or organic by-product application is specified in the plan.

On all sites, regardless of the PLAT rating, starter fertilizers containing nitrogen, phosphorus, and potassium may be recommended in accordance with North Carolina State University guidelines or recommendations.

A single application of phosphorus applied as manure or organic by-product may be made at a rate equal to the recommended phosphorus application or estimated phosphorus removal in harvested plant biomass for the crop rotation or multiple years in the crop sequence.

- When such single applications are made, the rate shall:
 - ◆ not exceed the recommended nitrogen application rate during the year of application, or
 - ◆ not exceed the estimated nitrogen removal in harvested plant biomass during the year of application when there is no recommended nitrogen application, or
 - ◆ not be made on sites with a Very High PLAT risk rating.
- **Potassium Application** – Planned potassium application rates should match the soil test recommended rates as closely as possible. (This is particularly critical in situations where a potentially harmful nutrient imbalance in crops or forages may occur, such as grass tetany). When using manure or other organic sources, the addition of potassium from non-organic sources may be required.
- **Other Plant Nutrients** - The planned rates of application of other nutrients if applicable are consistent with North Carolina State University or the NCDA&CS guidelines or recommendations.

Nutrient Application Timing

Timing of nutrient application shall correspond as closely as possible with

plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and field accessibility. Nutrients shall not be applied to frozen, snow-covered, or saturated soil.

Manure or organic by-products shall not be applied more than 30 days prior to planting of the crop or forages breaking dormancy.

For nutrients applied through irrigation systems, application equipment should be properly calibrated to ensure uniform distribution of material at planned rates.

Plan Review and Revision Period

A thorough review and revision (if needed) of the nutrient management plan shall be conducted on a regular cycle, not to exceed five years.

Heavy Metals Monitoring

For animal waste, including sludge, zinc and copper concentrations shall be monitored and alternative crop sites for application shall be sought when these metals approach excessive concentrations. The following criteria and actions are provided:

ZINC	
<u>Mehlich-3 Index</u>	<u>Action</u>
<u>(Zn-I)</u>	
300 (21 lbs/ac)	Peanuts are very sensitive to zinc, and application on peanuts should be limited. Seek alternative sites when possible. The risk of zinc toxicity is greater with low soil pH and has been seen at Zn-I as low as 300. *
500 (35 lbs/ac)	Critical toxic level for peanuts. Cease application on peanuts. *
2,000 (142 lbs/ac)	Caution: Seek alternative sites when possible for all crops. *
3,000 (213 lbs/ac)	Critical toxic level for all crops. Cease application for all crops. *

COPPER	
Mehlich-3 Index (Cu-I)	Action
2,000 (72 lbs/ac)	Caution: Seek alternative sites when possible for all crops. *
3,000 (108 lbs/ac)	Critical toxic level for all crops. Cease application on all crops. *
	* Maintain pH at 6.0 on these sites.

When sewage sludge is applied, the accumulation of potential pollutants (including arsenic, cadmium, copper, lead, selenium, and zinc) in the soil shall be monitored in accordance with the US Code, Reference 40 CFR, Parts 403 and 503, and applicable state and local laws or regulations. Additional information on heavy metal criteria for sewage sludge may be found in Land Application of Sewage Sludge, EPA/831-B-93-002b publication number at:

<http://www.epa.gov/npdcs/pubs/sludge.pdf>

ADDITIONAL REQUIREMENTS FOR MINIMIZING DELIVERY OF NUTRIENTS TO SURFACE AND GROUND WATER

In areas that have been identified as impaired with agricultural nutrients being a likely source, an assessment shall be completed of the potential for nitrogen or phosphorus transport from the site. (The streams/water bodies in this category are listed in the USDA-NRCS Field Office Technical Guide, Section I.)

☐ **NO**

This nutrient management plan **IS NOT** in an area where surface waters are impaired, with agricultural nutrients identified as a likely source. The Leaching Index (LI) is not required.

☒ **YES**

This nutrient management plan **IS** in an area where surface waters are impaired, with agricultural nutrients identified as a

likely source. The Leaching Index (LI) is included in this plan.

While the results of the LI does not affect your planned nutrient application rates, some additional conservation practices may be specified in the plan to reduce the risk of nutrient movement from the field, if applicable.

IMPORTANCE OF MANAGING NUTRIENTS

Nitrogen and phosphorus are water soluble elements and either or both may be components of organic and inorganic fertilizers. In soluble forms, both can move with water as leachate down through the soil, or over the soil surface as runoff after rainfall. While nitrogen and phosphorus exist in different forms and may move through different transport processes on the same site, they both can have detrimental effects on both surface and shallow ground water quality. As an example, excess nutrients can result in accelerated eutrophication with severe algal blooms and fish kills.

Because of the topography, hydrology, and other factors in the state, the environmental problems from excess nutrients reaching surface water may not be exhibited near the contributing source, but rather create water quality problems far downstream. Consequently, the Neuse River Basin, Tar-Pamlico Basin, the Chowan River, the watershed of the B. Everett Jordan Reservoir, and the watershed of the New River in Onslow County are listed as Nutrient Sensitive waters in North Carolina.

Nitrogen: Nitrogen applied as fertilizer or organic material is transformed into nitrate and can move with the water moving downward into the shallow ground water and eventually to surface waters. (Relatively small amounts of nitrogen reach our surface waters through rainfall runoff.) The Leaching Index (LI) is a

required part of the nutrient management plan in some areas of the state with surface water impairments. The LI uses soils information and local climate data to assess the potential hazard from leaching of nutrients. The results of the LI analysis and recommended actions are included in your nutrient management plan, if applicable.

Phosphorus: Research in recent decades indicates that, with high soil phosphorus levels, phosphorus has more potential to be transported off-site than recognized in the past. Phosphorus can be transported in several ways: (1) attached to soil particles leaving the field through erosion, (2) in soluble form leaving the field in surface runoff, and (3) in soluble form leaching downward through the soil profile, and eventually into surface water. Unlike nitrogen, the most likely transport pathway for phosphorus varies by site, and depends upon such factors as soil erosion rate, soil phosphorus levels, texture of soils, existence of buffers, and other factors. In N.C., PLAT is the tool used to assess potential excessive phosphorus losses. The results of the PLAT analysis and recommended actions are included in your nutrient management plan, if applicable.

If a site receives a PLAT rating of Low or Medium, then applying manure at rates based on the nitrogen needs of the crop is allowed. It is important to realize that this may result in phosphorus being applied at rates that significantly exceed the crop's phosphorus removal rate. In these cases, the planned nutrient application rate is not sustainable, and eventually a PLAT rating of High may be reached.

OPERATION & MAINTENANCE

You are responsible for safe operation and maintenance of this practice, including all equipment. The following Operation & Maintenance should be conducted:

1. Review the plan annually to determine if adjustments or modifications to the plan

are needed. (The S.B. 1217 interagency group guidelines accepted by the N.C. Division of Water Quality for .0200 operations specify a plan revision when there are changes in crops or cropping patterns that utilize more than 25 percent of the nitrogen generated by the operation.) As a minimum, nutrient management plans shall be thoroughly reviewed every five years and revised if necessary. The next review will be performed in _____.

2. Protect fertilizer and organic by-product storage facilities from weather and accidental leakage or spillage.
3. Ensure proper calibration of application equipment to ensure uniform distribution of material at planned rates.
4. Inspect and maintain the equipment and facilities used to implement the Nutrient Management/Waste Utilization Plan regularly. Any needed repairs should be made in a timely manner.
5. Review the Emergency Action Plan, if applicable, annually.
6. Records should be maintained for five years, or for a period as required by other Federal, state, or local ordinances, or program or contract requirements. To ensure adequate information exists to support sound nutrient management, NRCS recommends the following records be included:
 - Soil test results and recommendations for nutrient application,
 - Quantities, analyses and sources of nutrients applied (When the actual rates used exceed the recommended and planned rates on inorganic fertilizer plans,

records should indicate the reasons for the differences, e.g. inability to acquire custom blended fertilizer.)

- Dates and method of nutrient applications,
- Crops planted, planting and harvest dates, yields, and crop residues removed,
- Results of water, plant, and organic by-product analyses, and
- Dates of review and person performing the review, and recommendations that resulted from the review.

NOTE: State laws or regulations may define record-keeping requirements for some operations.

7. Ensure that workers are protected from and avoid unnecessary contact with inorganic fertilizers and organic by-products. Protection should include the use of protective clothing when working with plant nutrients. Extra caution must be taken when handling ammonia sources of nutrients, or when dealing with organic wastes stored in poorly ventilated enclosures.
8. Properly dispose of material generated by the cleaning of nutrient application equipment. Excess material should be collected and stored or field applied in an appropriate manner. Excess material should not be applied on areas of high potential risk for runoff or leaching.
9. Properly dispose of or recycle nutrient containers according to state and local guidelines or regulations.

Crop Notes

The following crop note applies to field(s): 01, 02, 03

Corn Silage: Piedmont and Mountains

In the Piedmont, corn should be planted when soil temperature reaches 52 to 55 degrees fahrenheit. Plant 1-2" deep. Adequate depth control is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply 10 to 12 lbs. nitrogen per ton of expected yield. All nitrogen can be applied at planting. Also acceptable is to apply 2/3 to 3/4 of the nitrogen at planting and the rest when corn is in the 7 to 9 leaf stage. Tropical corn for silage needs about 6-8 lbs nitrogen per ton of expected yield applying no more than 100 to 120 lbs total nitrogen. Research has shown that nitrogen can be reduced by approximately 15 percent when soil injected. The total N is dependent on the soil type and expected yield. Apply phosphorus and potassium according to a soil test before planting. Phosphorus is best utilized when banded with the planter as a starter. Plant samples can be analyzed during the growing season to monitor the nutrient status of the corn. Timely management of weeds and insects is essential in profitable corn silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 01b, 02, 06 BR, 06 P12, 19, 20, 23, 24, 25, 26, 28, 29, 31, 32, 33a, 33b, 34c

Corn Silage: Piedmont and Mountains

In the Piedmont, corn should be planted when soil temperature reaches 52 to 55 degrees fahrenheit. Plant 1-2" deep. Adequate depth control is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply 10 to 12 lbs. nitrogen per ton of expected yield. All nitrogen can be applied at planting. Also acceptable is to apply 2/3 to 3/4 of the nitrogen at planting and the rest when corn is in the 7 to 9 leaf stage. Tropical corn for silage needs about 6-8 lbs nitrogen per ton of expected yield applying no more than 100 to 120 lbs total nitrogen. Research has shown that nitrogen can be reduced by approximately 15 percent when soil injected. The total N is dependent on the soil type and expected yield. Apply phosphorus and potassium according to a soil test before planting. Phosphorus is best utilized when banded with the planter as a starter. Plant samples can be analyzed during the growing season to monitor the nutrient status of the corn. Timely management of weeds and insects is essential in profitable corn silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 13, 14, 17, 21, 22, 30, 34b

Corn Silage: Piedmont and Mountains

In the Piedmont, corn should be planted when soil temperature reaches 52 to 55 degrees fahrenheit. Plant 1-2" deep. Adequate depth control is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply 10 to 12 lbs. nitrogen per ton of expected yield. All nitrogen can be applied at planting. Also acceptable is to apply 2/3 to 3/4 of the nitrogen at planting and the rest when corn is in the 7 to 9 leaf stage. Tropical corn for silage needs about 6-8 lbs nitrogen per ton of expected yield applying no more than 100 to 120 lbs total nitrogen. Research has shown that nitrogen can be reduced by approximately 15 percent when soil injected. The total N is dependent on the soil type and expected yield. Apply phosphorus and potassium according to a soil test before planting. Phosphorus is best utilized when banded with the planter as a starter. Plant samples can be analyzed during the growing season to monitor the nutrient status of the corn. Timely management of weeds and insects is essential in profitable corn silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 01a, 12 P13, 12 P14, 12 P15, 12 P16, 12 P17, 12 P18

Corn Silage: Piedmont and Mountains

In the Piedmont, corn should be planted when soil temperature reaches 52 to 55 degrees fahrenheit. Plant 1-2" deep. Adequate depth control is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply 10 to 12 lbs. nitrogen per ton of expected yield. All nitrogen can be applied at planting. Also acceptable is to apply 2/3 to 3/4 of the nitrogen at planting and the rest when corn is in the 7 to 9 leaf stage. Tropical corn for silage needs about 6-8 lbs nitrogen per ton of expected yield applying no more than 100 to 120 lbs total nitrogen. Research has shown that nitrogen can be reduced by approximately 15 percent when soil injected. The total N is dependent on the soil type and expected yield. Apply phosphorus and potassium according to a soil test before planting. Phosphorus is best utilized when banded with the planter as a starter. Plant samples can be analyzed during the growing season to monitor the nutrient status of the corn. Timely management of weeds and insects is essential in profitable corn silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 15, 18, 34a, 34d

Corn Silage: Piedmont and Mountains

In the Piedmont, corn should be planted when soil temperature reaches 52 to 55 degrees fahrenheit. Plant 1-2" deep. Adequate depth control is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply 10 to 12 lbs. nitrogen per ton of expected yield. All nitrogen can be applied at planting. Also acceptable is to apply 2/3 to 3/4 of the nitrogen at planting and the rest when corn is in the 7 to 9 leaf stage. Tropical corn for silage needs about 6-8 lbs nitrogen per ton of expected yield applying no more than 100 to 120 lbs total nitrogen. Research has shown that nitrogen can be reduced by approximately 15 percent when soil injected. The total N is dependent on the soil type and expected yield. Apply phosphorus and potassium according to a soil test before planting. Phosphorus is best utilized when banded with the planter as a starter. Plant samples can be analyzed during the growing season to monitor the nutrient status of the corn. Timely management of weeds and insects is essential in profitable corn silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 05, 07a BR, 07a P10, 09 BR, 09 P8, 09 P9, 10 BR, 10 P7, 11 BR, 11 P1, 11 P2, 11 P3, 11 P4, 11 P5, 11

Corn Silage: Piedmont and Mountains

In the Piedmont, corn should be planted when soil temperature reaches 52 to 55 degrees fahrenheit. Plant 1-2" deep. Adequate depth control is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply 10 to 12 lbs. nitrogen per ton of expected yield. All nitrogen can be applied at planting. Also acceptable is to apply 2/3 to 3/4 of the nitrogen at planting and the rest when corn is in the 7 to 9 leaf stage. Tropical corn for silage needs about 6-8 lbs nitrogen per ton of expected yield applying no more than 100 to 120 lbs total nitrogen. Research has shown that nitrogen can be reduced by approximately 15 percent when soil injected. The total N is dependent on the soil type and expected yield. Apply phosphorus and potassium according to a soil test before planting. Phosphorus is best utilized when banded with the planter as a starter. Plant samples can be analyzed during the growing season to monitor the nutrient status of the corn. Timely management of weeds and insects is essential in profitable corn silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 07b P11

Fescue: Mountains

Adaptation: Well-adapted.

In the Mountains, tall fescue can be planted July 25 to Aug. 20 (best) and Mar. 20 to Apr. 20. For pure-stand broadcast seedings use 20 to 30 lb/ac., for drilled use 15 to 20 lb/ac. seed. Use certified seed to avoid introducing weeds or annual ryegrass. Plant seed 0.25" to 0.5" deep for pure stands, 0.25" in mixture with clovers. Soil test for preplant and maintenance lime, phosphorus, and potassium recommendations. Apply 40 to 60 lb/ac nitrogen at planting for pure stands only. Do not apply N for mixtures with clovers but use proper legume inoculation techniques. Apply 150 to 200 lb/ac. N to pure-stand fescue for hay production; reduce N rates by 25% to 50% for grazing. Apply N Mar. 10 to Apr. 20 and Aug. 10 to Sept. 10, with equal amounts in each window. In higher mountain pastures spring N can be delayed until after the early flush of seedheads has been mowed or grazed off. Refer to NCSU Technical Bulletin 305 Production and Utilization of Pastures and Forages in North Carolina for additional information or consult your regional agronomist or extension agent for assistance.

The following crop note applies to field(s): 01, 02, 03

Small Grain Silage, Piedmont and Mountains

In the Piedmont, small grain silage should be planted from October 10 to November 3. In the Mountains, small grain silage should be planted from September 15 to October 31. Plant 18 to 22 seed/drill row foot at 1-1 1/2" deep and increase the seeding rate by 5% for each week seeding is delayed beyond the optimum time frame. See the seeding rates table for applicable seeding rate modifications in the current NCSU "Small Grain Production Guide". Also, increase the initial seeding rate by at least 10% when planting no-till. Adequate depth control when planting the small grain is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply approximately 30 lbs N at planting. Increase N at planting by 20% for no-till. Phosphorus and potassium should be applied according to a soil test at this time. The remaining N should be applied during February-March. Apply 10 to 12 lbs. N per ton of expected yield. The total N is dependent on soil type and expected yield. Plant samples can be analyzed during the growing season to monitor the nutrient status of the small grain. Timely management of diseases, weeds and insects are essential for profitable small grain silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 01b, 02, 06 BR, 06 P12, 19, 20, 23, 24, 25, 26, 28, 29, 31, 32, 33a, 33b, 34c

Small Grain Silage, Piedmont and Mountains

In the Piedmont, small grain silage should be planted from October 10 to November 3. In the Mountains, small grain silage should be planted from September 15 to October 31. Plant 18 to 22 seed/drill row foot at 1-1 1/2" deep and increase the seeding rate by 5% for each week seeding is delayed beyond the optimum time frame. See the seeding rates table for applicable seeding rate modifications in the current NCSU "Small Grain Production Guide". Also, increase the initial seeding rate by at least 10% when planting no-till. Adequate depth control when planting the small grain is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply approximately 30 lbs N at planting. Increase N at planting by 20% for no-till. Phosphorus and potassium should be applied according to a soil test at this time. The remaining N should be applied during February-March. Apply 10 to 12 lbs. N per ton of expected yield. The total N is dependent on soil type and expected yield. Plant samples can be analyzed during the growing season to monitor the nutrient status of the small grain. Timely management of diseases, weeds and insects are essential for profitable small grain silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 13, 14, 17, 21, 22, 30, 34b

Small Grain Silage, Piedmont and Mountains

In the Piedmont, small grain silage should be planted from October 10 to November 3. In the Mountains, small grain silage should be planted from September 15 to October 31. Plant 18 to 22 seed/drill row foot at 1-1 1/2" deep and increase the seeding rate by 5% for each week seeding is delayed beyond the optimum time frame. See the seeding rates table for applicable seeding rate modifications in the current NCSU "Small Grain Production Guide". Also, increase the initial seeding rate by at least 10% when planting no-till. Adequate depth control when planting the small grain is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply approximately 30 lbs N at planting. Increase N at planting by 20% for no-till. Phosphorus and potassium should be applied according to a soil test at this time. The remaining N should be applied during February-March. Apply 10 to 12 lbs. N per ton of expected yield. The total N is dependent on soil type and expected yield. Plant samples can be analyzed during the growing season to monitor the nutrient status of the small grain. Timely management of diseases, weeds and insects are essential for profitable small grain silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 01a, 12 P13, 12 P14, 12 P15, 12 P16, 12 P17, 12 P18
Small Grain Silage, Piedmont and Mountains

In the Piedmont, small grain silage should be planted from October 10 to November 3. In the Mountains, small grain silage should be planted from September 15 to October 31. Plant 18 to 22 seed/drill row foot at 1-1 1/2" deep and increase the seeding rate by 5% for each week seeding is delayed beyond the optimum time frame. See the seeding rates table for applicable seeding rate modifications in the current NCSU "Small Grain Production Guide". Also, increase the initial seeding rate by at least 10% when planting no-till. Adequate depth control when planting the small grain is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply approximately 30 lbs N at planting. Increase N at planting by 20% for no-till. Phosphorus and potassium should be applied according to a soil test at this time. The remaining N should be applied during February-March. Apply 10 to 12 lbs. N per ton of expected yield. The total N is dependent on soil type and expected yield. Plant samples can be analyzed during the growing season to monitor the nutrient status of the small grain. Timely management of diseases, weeds and insects are essential for profitable small grain silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 15, 18, 34a, 34d
Small Grain Silage, Piedmont and Mountains

In the Piedmont, small grain silage should be planted from October 10 to November 3. In the Mountains, small grain silage should be planted from September 15 to October 31. Plant 18 to 22 seed/drill row foot at 1-1 1/2" deep and increase the seeding rate by 5% for each week seeding is delayed beyond the optimum time frame. See the seeding rates table for applicable seeding rate modifications in the current NCSU "Small Grain Production Guide". Also, increase the initial seeding rate by at least 10% when planting no-till. Adequate depth control when planting the small grain is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply approximately 30 lbs N at planting. Increase N at planting by 20% for no-till. Phosphorus and potassium should be applied according to a soil test at this time. The remaining N should be applied during February-March. Apply 10 to 12 lbs. N per ton of expected yield. The total N is dependent on soil type and expected yield. Plant samples can be analyzed during the growing season to monitor the nutrient status of the small grain. Timely management of diseases, weeds and insects are essential for profitable small grain silage production. Plant a cover crop after harvest.

The following crop note applies to field(s): 05, 07a BR, 07a P10, 09 BR, 09 P8, 09 P9, 10 BR, 10 P7, 11 BR, 11 P1, 11 P2, 11 P3, 11 P4, 11 P5, 11

Small Grain Silage, Piedmont and Mountains

In the Piedmont, small grain silage should be planted from October 10 to November 3. In the Mountains, small grain silage should be planted from September 15 to October 31. Plant 18 to 22 seed/drill row foot at 1-1 1/2" deep and increase the seeding rate by 5% for each week seeding is delayed beyond the optimum time frame. See the seeding rates table for applicable seeding rate modifications in the current NCSU "Small Grain Production Guide". Also, increase the initial seeding rate by at least 10% when planting no-till. Adequate depth control when planting the small grain is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply approximately 30 lbs N at planting. Increase N at planting by 20% for no-till. Phosphorus and potassium should be applied according to a soil test at this time. The remaining N should be applied during February-March. Apply 10 to 12 lbs. N per ton of expected yield. The total N is dependent on soil type and expected yield. Plant samples can be analyzed during the growing season to monitor the nutrient status of the small grain. Timely management of diseases, weeds and insects are essential for profitable small grain silage production. Plant a cover crop after harvest.